

# The Response, Recovery and Lessons Learned from the Missouri Floods of 1993 and 1994

Prepared by  
State Emergency Management Agency (SEMA)

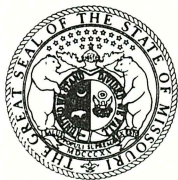


STATE OF MISSOURI

EMERGENCY MANAGEMENT AGENCY

DEPARTMENT OF PUBLIC SAFETY  
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January 1995

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The Floods of 1993 and 1994 caused Missouri Governor Mel Carnahan to ask President Clinton for four Presidential Disaster Declarations in the space of one calendar year beginning May 6, 1993 with the first Presidential Declaration and ending with the fourth Presidential Declaration on April 17, 1994. The fact that Missouri will be recovering from the ravages of the four floods for several years is undisputed fact.

To gain a better insight into the 1993-94 flooding events, Missouri's State Emergency Management Agency (SEMA) with the assistance of various State Departments and their agencies who had a direct flooding response and recovery role, produced the Floods of 1993 and 1994 Response, Recovery and Lessons Learned report. This report serves as a historical document. More importantly each State Department chronicled their response and recovery operations and included their lessons learned from the flooding events. This document can become a guide for State Departments and their agencies to more efficiently plan and respond to our citizens' needs in future disasters.

It is SEMA's great pleasure to present this document to local and county governments and State Departments and their agencies with special thanks for their emergency preparedness efforts in the response and long term recovery from the Floods of 1993 and 1994.

Sincerely,

A handwritten signature in cursive script, reading "Jerry B. Uhlmann".  
Jerry B. Uhlmann  
Director



## OFFICE OF THE GOVERNOR

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MEL CARNAHAN  
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The floods of 1993 and 1994 left a legacy of destruction, human suffering and property damage of unprecedented terms in Missouri's history. In the space of one calendar year, Missouri received four presidential declarations for flooding along the Missouri and Mississippi Rivers. The floods' ravages were felt in 112 of 114 counties destroying homes, businesses and spoiling croplands. During the floods, the spirit of volunteerism prevailed - neighbors helped neighbors. In short there were no strangers when it came to sandbagging, flood fighting, protecting property and the daunting task of clean up.

The Floods were a "slow moving" disaster allowing communities downstream to take preventative protection measures such as sandbagging and evacuations. Unfortunately, this "slow moving" disaster was of little solace to the 216,000 households living in designated flood plains who saw their homes and communities destroyed.

Missouri is moving toward Recovery with state and federal programs designed to help communities rebuild their public facilities and citizens rebuilt their futures. The cooperation among state, federal and local governments is outstanding and ongoing. This report summarizes not only the disaster but more importantly the recovery. The lessons learned by local governments and state agencies can better prepare Missourians to meet future catastrophic disasters.

This report chronicles the floods. It is our hope that we can learn from the flooding disaster to better protect citizens and prepare for future natural or manmade disasters.

A handwritten signature in cursive script that reads 'Mel Carnahan'.

Mel Carnahan  
Governor

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This document was produced by the Missouri State Emergency Management Agency (SEMA). In the Lessons Learned section, local and county management directors and elected officials were surveyed for a presentation which was made at the Missouri Emergency Preparedness Assn / SEMA 1994 Spring Conference. State agencies who participated in the flood response and recovery provided SEMA with their lessons learned for the purposes of the report.

**Cover photo: The Missouri River at the State Capitol in Jefferson City. Photo Courtesy Missouri Highways and Transportation Department.**



# INTRODUCTION: EMERGENCY MANAGEMENT

In the language of emergency management, an emergency is a dangerous event similar to a disaster, but which can be controlled within the scope of local resources. A disaster is a dangerous event that causes significant human and economic loss, and demands a crisis response beyond the scope of any single agency or service, such as the fire department or police. Specifically, a disaster requires resources beyond those available locally.

Preparing for emergencies and disasters is, by law, a joint responsibility of local, state, and federal governments. Mayors, city managers, local police and fire protection officials, county executives, sheriffs, prosecuting attorneys, and public health officials are some of the people responsible for law enforcement, safety, health, and fire protection on a daily basis. They are responsible for responding to emergencies and for developing appropriate emergency response plans. Most local jurisdictions have someone who serves as an Emergency Management Director (EMD) to plan and coordinate actions in an emergency. Most local jurisdictions also have mutual aid agreements with other adjoining jurisdictions that allow for back up firefighter and police assistance.

At times however, there are emergencies when local officials simply do not have the resources to adequately respond. Once local officials determine that an emergency is beyond the scope of their resources or ability to respond, the senior political official is responsible for requesting additional assistance from the Governor. The Governor will

analyze the scope of the emergency, and decide whether or not to declare a State of Emergency by Executive Order for the impacted area. A State of Emergency triggers the use of additional State government resources to augment the needs of local government in combating disaster conditions.

In Missouri, the agency responsible for coordinating State agency response and recovery operations, and allocating State resources for the Governor during a State of Emergency is the State Emergency Management Agency (SEMA). SEMA is also responsible for coordinating preparedness for disasters, works with local emergency management directors, and with the agencies of State government to develop a State Emergency Operations Plan (SEOP). This Plan outlines the actions of State government departments and agencies in the event of any emergency requiring use of State resources and personnel. SEMA also works with State agencies and local governments to identify and then institute measures to mitigate hazards (natural or man made) prior to their occurrence within the State.

When the scope of the disaster exceeds the resources of the State, the Governor is responsible for making a request to the President for a federal disaster declaration. If issued, the Federal Emergency Management Agency (FEMA) is responsible for coordinating the federal response to a disaster for the President, and overseeing the distribution and administration of funds. A Presidential Declaration makes available a wide range of assistance to individuals and/or local and state governments, and certain types of private non-profit organiza-

tions. Assistance programs are provided by the SBA, USDA, Federal Highway Administration, U.S. Department of Education, U.S. Department of Health, and EPA, to name a few. In addition, FEMA administers the individual and public assistance programs, and the funds that become available for programs which seek to mitigate future disasters.

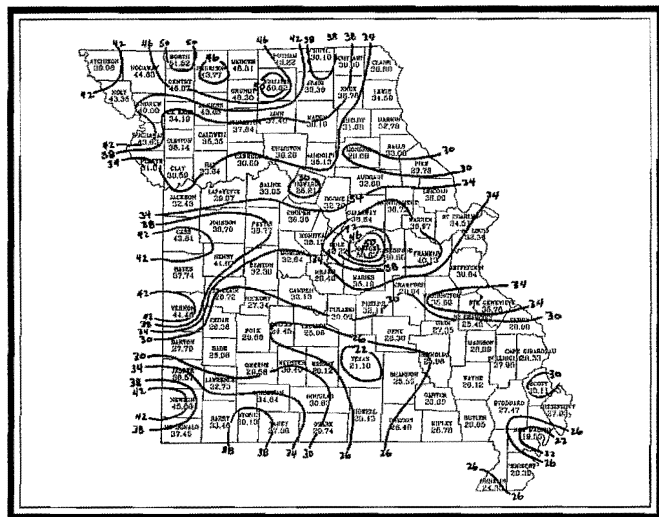
The process of emergency management, therefore, is a cycle. The cycle consists of preparedness, disaster, response, recovery, hazard mitigation, and preparedness to complete the cycle. Past disasters shape how State and Federal governments, and private agencies will respond in the future. Agencies examine what works and what doesn't in response and recovery, and then develop mitigation and preparedness measures accordingly.

The purpose of this document, therefore, is to complete the Emergency Management Cycle by assessing the level of preparedness, the response and recovery, and hazard mitigation measures associated with the Great Flood of '93. This document is to examine the lessons learned from this disaster, in an effort to allow disaster response agencies to more adequately prepare for future disasters, and better serve the citizens of the State of Missouri.

This After Action Review was assembled by the State Emergency Management Agency with input from each of the response and recovery, and hazard mitigation participants in the disaster. It was done with the belief that history can be an important teacher, and that collective wisdom is superior to individual wisdom.

# 1. THE DISASTER

The origins of the Great Flood of 1993 began with an extended period of wet weather starting 9-10 months prior to the onset of major flooding. Soils



**Missouri Total Rain Fall Jan 1 - July 31, 1993**  
Data from ASCS County Offices and NWS

throughout the upper midwest became saturated by excessive rain in July, September, and especially November of 1992. This set the stage for rapid runoff and record flooding following another period of excessive rain in January through July of 1993. The unusual rains were due to the presence of a stationary front over the southeastern United States, that altered the normal flow of the jet stream. Moisture from the Gulf of Mexico collided with cooler air from Canada producing weeks of almost constant rain throughout the upper midwest. Precipitation in Missouri for January through July of 1993 was 150-200% above normal. Additionally Kansas, Nebraska and Iowa experienced significant rainfall during this same period.

This unusual rain resulted in unusual flooding. Missourians were given a preview of the extensive devastation to come as heavy spring rains in April and May soaked the ground in the eastern part of the State, causing major flooding in St. Charles,

was 9.48 inches. Northwestern Missouri counties reporting more than 20 inches of rain in July included Holt, Nodaway, Andrew, Buchanan, Worth, Gentry, Mercer, Grundy, Sullivan and Putnam. The 29 inches of rain that fell in Worth County during July were seven times the long term average and 18 inches greater than the previous

record in 1958. One hundred two Missouri counties, and 3 cities were federally declared disaster areas for individual assistance, and 88 counties and 3 cities declared disaster areas for public assistance during the period

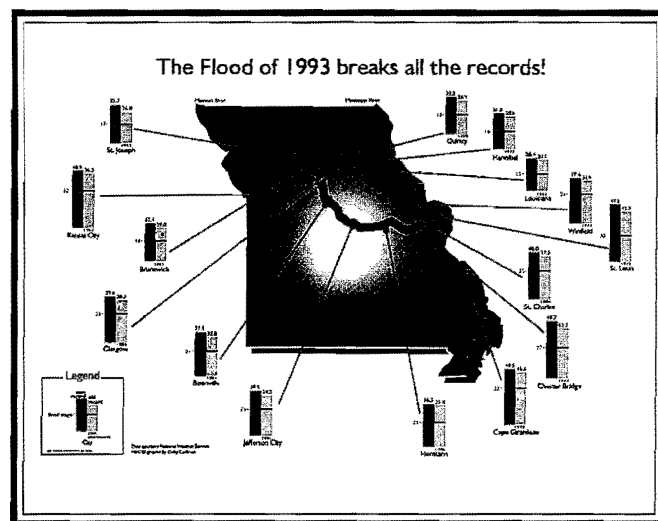
Lincoln and 6 other counties along the Mississippi. Eight Mississippi River counties eventually received federal disaster declarations for individual assistance during the period April 15 through May 29.

The rains continued into July, and by mid-summer prolonged rains resulted in prolonged flooding. The average rainfall in the month of July

June 10 to October 25.

The National Weather Service reported that record river stages at 33 cities on the Missouri and Mississippi Rivers and their tributaries were broken in 1993. Missourians realized they were encountering record high river stages. More than 30,000 Missourians were evacuated during the summer flooding and there were 21 deaths. During the November flooding, more than 12,000 people were evacuated and an additional 20 people died. In the April 1994 flooding, hundreds of people were evacuated from their homes yet 11 people still lost their lives.

In the fall, November 13-19 severe rains and flash flooding combined with saturated soil triggered a third Presidential Disaster Declaration for flooding in Missouri. Twenty-four Missouri counties were declared eligible for individual assistance, and



**Data Courtesy National Weather Service**  
**Graphics by Coby Coffmann, Mo Highways & Transportation**

14 counties for public assistance.

Therefore, for the year 1993, 112 of Missouri's 114 counties were declared disaster areas because of flooding. The only two Missouri counties not



declared for either individual assistance or public assistance were Cedar and Dunklin. The floods of 1993 were the costliest and most prolonged natural disaster to hit the State of Missouri in its 170+ year history.

Severe weather, rains, and early spring flash flooding in early April, 1994, compounded by water logged soil caused 30 rivers and creeks in every Missouri county to rise between April 9-14. Evacuations were ordered in Lincoln, Reynolds, Jefferson and St. Charles Counties. On April 14, Governor Carnahan issued a State of Emergency for Central and Eastern Missouri counties. On April 21 President Clinton issued a Presidential Disaster Declaration for flooding in 5 counties and the City of St. Louis. This became the fourth Presidential

Disaster Declaration for Missouri in the space of one calendar year. The severe weather and flash flooding incident was finally closed on May 6, 1994. Eleven Missourians lost their

lives during this incident, 8 were drownings due to flash flooding. By May 11, 1994, 17 Missouri counties and the City of St. Louis were eligible for individual assistance.



Photo courtesy MO National Guard

## 2. RESPONSE OPERATIONS

The Great Flood of '93 was the longest sustained disaster in the history of the State, and called for the use of local, state, and federal resources on an unprecedented scale. In actuality, the Flood of '93 was a series of floods that impacted various parts of the State at different times. As the disaster ebbed in one area of the State, it grew in another. Communities downstream watched flooding upstream with anticipation, knowing what was happening upstream might soon threaten their community.

The floods of April and May, 1993, were primarily confined to Mississippi River counties centered around the St. Louis-St. Charles area. St. Charles County was particularly hard hit, and evacuations and road closing began in advance of other parts of the State.

The floods in June, July, and August

were spread throughout almost the whole of the State, with the greatest devastation taking place in Missouri and Mississippi River communities. Few communities along these two great rivers were spared devastating flooding, as the State EOC operated around the clock from July 1 through September 7 in an effort to assist these communities.

The flash floods in November were localized primarily in south-central and southeast Missouri counties. Although these floods were of short duration, they were as devastating to affected communities as the long term inundating floods of the summer.

Severe spring weather and Spring flash floods in April, 1994, were widespread primarily due to the water soaked soil conditions. Rains over a three week period caused major rivers

to rise and evacuations were ordered in counties bordering the Missouri and Mississippi Rivers. The flash flooding affected communities that had been hard hit with flooding in 1993.



Photo courtesy Nick Decker, DNR

## SPRING FLOODS

### LOCAL RESPONSE

The St. Charles County Emergency Management Director (EMD) began a flood watch in mid-April, as heavy rains in the upper midwest signalled possible flooding downstream. The Mississippi rose gradually and steadily until it began to overwhelm the ability of the counties to respond on April 23. The Presiding Commissioner of St. Charles County requested mutual aid from Warren County and eventually contacted SEMA the night of April 23 and asked for State assistance. At that time the EMD was reporting 200-250 homes in the county were flooded and the only safe route through St. Charles County due to flooding on secondary roads was I-70.

This same night the Lincoln County Presiding Commissioner reported to SEMA that the Winfield Levee was leaking, and the water level was 1-2 feet from overtopping, and therefore threatening 75 homes. The breach or overtopping of this levee was a serious concern to the County, and the Commissioner asked for assistance.

### STATE RESPONSE

On April 26, 1993, three representatives of SEMA conducted Preliminary Damage Assessment (PDA) in St. Charles and surrounding counties by vehicle. Since so many of the roads were closed due to high water, access to flooded communities was almost impossible. Therefore, the St. Charles County EMD arranged for SEMA representatives to see the flooded areas by boat. The morning of the April 27 the Coast Guard picked up the SEMA representatives and took them to the flooded areas along the Mississippi. As waters were still high, it was difficult to obtain a clear picture of the damage. But the extent of the water inundation made it clear damage was likely to be heavy, and those who were flooded were likely to need assistance. The SEMA staff members recommended to the SEMA Director that the

Governor declare a State of Emergency, and the State should ask for a federal declaration. The SEMA Director concurred and reported these findings and recommendations to the Governor.

On April 28, 1993, Governor Carnahan declared a State of Emergency for St. Charles County and other flooded areas along the Mississippi River. Appropriate sections of the SEOP for a Class II Emergency were activated, and the State EOC was activated on a limited basis. A SEMA damage assessment team prepared to depart for the impacted area to gather more complete information on damages.

On April 29, SEMA representatives conducted damage assessments in Lincoln, Pike, Ralls, and Marion Counties. Lincoln County reported several hundred homes had been affected by flooding. Pike County reported many county roads underwater, but only a few people had moved from their homes due to floods. Ralls County reported no one was yet out of their home, but several roads were underwater. Marion County reported in Hannibal two metal span bridges had been damaged, 20-25 blocks of streets were underwater, and six families evacuated. The Marion County EMD had activated the Local Emergency Operations Plan and response organizations were assisting as planned.

Based upon this PDA, State and federal officials decided to conduct joint damage assessments of flooded areas on April 30 and May 1. This assessment led Governor Carnahan on



**Flooding in Hannibal, Marion County**

May 3, 1994 to ask President Clinton to issue a Presidential Disaster Declaration for St. Charles and Lincoln Counties, as well as other areas in Missouri along the Mississippi River impacted by severe flooding. On May 11, President Clinton responded to Governor Carnahan's request and issued a disaster declaration for St. Charles and Lincoln Counties. This declaration was amended on May 20 to add Jefferson, Pike, and St. Louis Counties, on May 22 to add Marion and Ste. Genevieve Counties, and on May 26 to add Ralls County. On June 3, the Governor requested to add Public Assistance to the original declaration, but this was denied.

On May 13, Governor Carnahan and the Acting Regional Director of FEMA Region V, Frank Begley, signed the FEMA-STATE Agreement which made federal assistance available under the Individual and Family Grant Program (IFG). SEMA began staffing Disaster Application Centers (DACs) in order to assist individuals in flood recovery.

### FEDERAL RESPONSE

On May 11, 1993, President Clinton issued a federal disaster declaration (FEMA-DR-MO-989) for Lincoln and St. Charles Counties. This was later amended to add Marion,



Pike, Ste. Genevieve, St. Louis, Ralls, and Jefferson Counties. This declaration was for individual assistance only.

A Disaster Field Office (DFO) was established in Earth City, Mo., on May 13, 1993, to coordinate assistance activities. Four Disaster Application Centers (DACs) were set up in the eight counties receiving a Presidential Declaration for Individual Assistance. During the next two months, hundreds of individuals were given assistance. In the State-administered Individual and Family Grant program, 443 individuals received \$564,793 in emergency assistance.

On June 18, 1993, the DFO located in Earth City for the spring disaster



Local sandbagging efforts - photo by Mo National Guard

(FEMA-989-DR-MO) was closed and the individual assistance functions relocated to Kansas City for the

remainder of the application period (July 10, 1993).



Highways 54 & 63 Cloverleaf Intersection, North of Jefferson City. Photo courtesy Mo Highway and Transportation

## EXTENDED SUMMER FLOODING

### LOCAL RESPONSE

Missouri's cities and counties responded to the best of their ability throughout the extended summer floods of '93, initiating public warnings and advisories, closing roads, evacuating residents, rescuing those in trouble, and coordinating sandbagging

and shelter operations. The efforts of local officials and individual citizens in trying to protect homes and towns from the flood waters was truly heroic. Many communities managed to shore up levees or build temporary sandbag levees that protected homes. Local

Red Cross Chapters, the Salvation Army, and local churches provided emergency shelter and feeding. Thousands of volunteers assisted in sandbagging efforts. But despite heroic efforts, the continual rain and rising of flood waters simply over-

whelmed even the most heroic efforts of individual communities, and most were forced to ask the state for assistance.

## STATE RESPONSE

On July 1, 1993, as a result of new flooding, Governor Carnahan declared a State of Emergency for 18 counties. The State Emergency Operations Plan was activated, and the Emergency Operations Center went to 24-hour operation. On July 7 and 8, four State/Federal Preliminary Damage Assessment (PDA) teams surveyed Lewis, Lincoln, Marion, Pike and St. Charles counties. The teams consisted of SEMA, FEMA, SBA, and local representatives, and provided information to the Governor about the extent of damage in these counties. Based upon the team's recommendations, the Governor requested on July 9 that the President grant a federal disaster declaration for those counties. Over the next 90 days as the scope of the disaster expanded, the Governor requested 17 amendments to the original declaration.

On July 9, 1993, President Clinton responded to the Governor's request and issued a federal disaster declaration (FEMA-DR-MO-995) for 18 counties in Missouri. Over the next 90 days the declaration for Individual Assistance would be amended 17 times. A total of 102 counties and the cities of St. Louis, Kansas City and Jefferson City were designated as eligible for Individual Assistance.

## FEDERAL RESPONSE

On July 9 the Federal Emergency Management Agency (FEMA) implemented the Federal Response Plan and sent an Emergency Response Team Cell to the St. Louis area to coordinate mission assignments, and to establish a Disaster Field Office in Earth City, which opened on July 10. FEMA also established a Central Processing Office in Kansas City to handle the adminis-

trative processing associated with midwest Disaster Field Offices.

Disaster Application Centers (DACs) were established by SEMA and FEMA to provide central facilities for citizens to apply for disaster assistance.

Thirty-five DACs were opened throughout Missouri, to include two mobile DACs. DACs stayed open as long as applicants continued to register. Those who could not visit a DAC could register for assistance via the National Teleregistration Center in Denton, Texas.



Chesterfield, August 2, 1993, courtesy Nick Decker DNR

FEMA began response operations from the Regional Operations Center on July 12.

On July 20, 1993, Public Assistance was added to the original declaration and over the next 90 days a total of 88 counties and 3 cities were declared as eligible for Public Assistance.

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## FALL FLASH FLOODS

### LOCAL RESPONSE

In the early morning hours of November 14, 1993, strong thunderstorms with heavy rains and damaging winds moved across the southern part of Missouri. By 5:30 p.m., 19 counties had reported damage to homes, businesses, and infrastructure to the State EOC due to flash flooding and damaging winds. Several counties (St. Francois, Jefferson, Reynolds, Howell, Pulaski) had to order evacuations, and many people had to be rescued from inundated homes near rivers and creeks. There were two confirmed deaths, and two reported missing due to flooding. Roads were closed throughout much of southeast Missouri, and there were partial telephone and power outages.

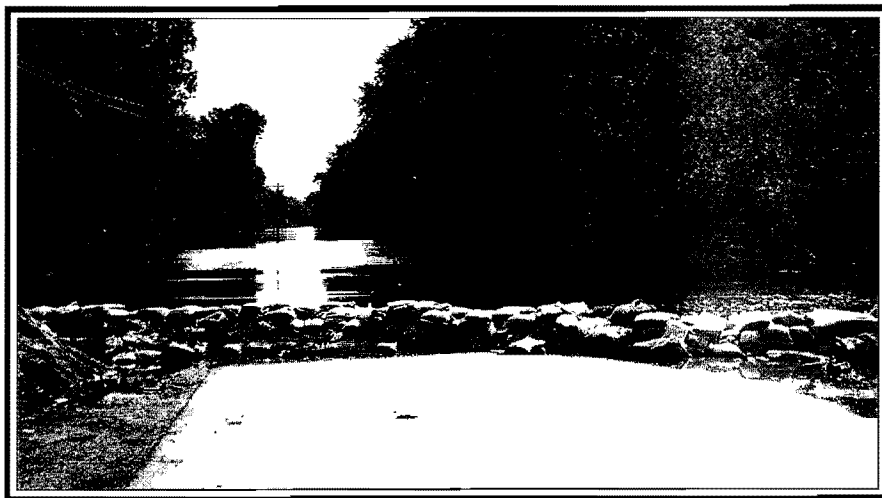
By 5:30 p.m. on November 15, seven deaths due to flooding had been reported, and cresting rivers were continuing to cause destruction to property. The Current, Black, Jacks

Fork, Elk, St. Francis, Bourbeuse, Big, Meramec and many other rivers were all above flood stage and causing serious problems. Affected counties were being overwhelmed by requests for assistance by those being displaced by the flooding, and asked for state assistance.

### STATE RESPONSE

On November 15, 1993, Governor Carnahan declared a State of Emergency as a result of devastating flash flooding and storms in southeast, southwest and eastern Missouri. On November 17, SEMA/FEMA Preliminary Damage Assessment Teams set out to gather information on damaged counties. The teams concentrated on Madison, Reynolds, St. Francois, and Cape Girardeau Counties in preparation for a Presidential disaster declaration. On November 18, the teams surveyed damage in Oregon, Howell,





Iron, Carter, Ripley, Bollinger, and Wayne Counties. On November 19, 1993, Governor Carnahan asked President Clinton for a presidential disaster declaration.

## FEDERAL RESPONSE

On December 1, 1993, President Clinton issued a disaster declaration for 14 counties in southeast Missouri which were hit by flash flooding (FEMA-DR-MO-1006). Disaster Application Centers were opened on December 4 in Jefferson, Reynolds, and St. Francois Counties, with representatives from SEMA and FEMA. On January 13, 1994, President Clinton issued a Presidential Declaration for Public Assistance for the November flooding.

## SUMMARY

Total losses during these '93 flood disasters included 49 deaths, and damages totaling approximately \$3 billion. In addition, agricultural losses were estimated at \$1.8 billion, as 3.1 million acres of farmland were either damaged or went unplanted because of '93 rains. The damages were more visible along the Missouri River bottom farmland. The Department of Agriculture estimated that 455,000 acres of Missouri River bottom land was destroyed by washouts and sand scouring. Of those 455,000 acres, approximately 90,000 acres had sand

deposits in excess of 2 or more feet. The reservoir and levee system can be termed a success. Levees designed to protect up to 50-year floods did their jobs. However the amount of rain and up river flooding conditions took their toll of the levee system. Damage to public and private levees in the State was extensive, as 840 of the 1456 levees were damaged.

During the course of the summer flooding, 22 major river bridges, 250 routes, and 950 individual flood sites causing road closures in 112 counties were closed at the same time. Public roads and highways also were severely damaged as spending on repairs totaling some \$70 million. More than 280 million sandbags were used during the summer flooding alone. Federal and State

agencies retrieved more than 247 large storage tanks, 1178 small tanks, 3470 large (over 15-gallon) drums and 5731 small drums.

Because of evacuations, it was estimated that 15,000-17,000 Missourians were homeless because of flooding. The Missouri Department of Labor and Industrial Relations reported that \$6.2 million was disbursed for disaster unemployment assistance between July 1993 through March 1994. FEMA estimated in Missouri fewer than 22,000 flood insurance policies were in force in designated flood plains where more than 216,000 Missouri households are located. This translates into fewer than 1 in 10 Missourians living in the flood plain had flood insurance. Truly, this was a disaster without equal in the history of the State of Missouri.



Tanks collected from the flood plains, photo courtesy Nick Decker, DNR

## SPRING 1994 FLOODING

### LOCAL RESPONSE

In the early morning hours of April 10, 1994, strong thunderstorms with heavy rains and damaging winds moved across the southern and central part of Missouri. Flash flooding claimed two lives, and severe weather (a tornado touch down) claimed a third life during the overnight storms. By early morning April 11, 30 rivers and major creeks in virtually every Missouri county were rising. Bagnall Dam at the Lake of the Ozarks was releasing water into the Osage River causing flooding down river. St. Louis raised the flood gates where the Missouri River was expected to crest at 39 feet. Evacuations were ordered in Lincoln, Reynolds, Jefferson and St. Charles Counties. The Meramec River was flooding Valley Park. On April 13, a fourth death was reported.

By April 14, the Missouri River was cresting above flood stage in Central Missouri, the Meramec was cresting between 29-40 feet in different locations, there was flash flooding on the Cuirve River. The Mississippi River was rising from St. Louis to Caruthersville. The Red Cross and Salvation Army were setting up both feeding and sheltering sites.

### STATE RESPONSE

On April 14, 1994, Governor Carnahan issued a State of Emergency as a result of the flash flooding in Central and Southern Missouri. On April 15, SEMA/FEMA/SBA Preliminary Damage Assessment Teams set out to gather information on damaged counties. The Teams concentrated on Lincoln, Franklin, St. Charles, St. Louis and Jefferson Counties. On April 18, 1993, Governor Carnahan asked President Clinton for a Presidential Disaster Declaration.

Clinton issued a disaster declaration for five counties in eastern Missouri and the City of St. Louis which were hit by severe weather and flooding (FEMA-DR-MO-1023). Disaster Application Centers were opened on April 24 in Lincoln, Franklin, Jefferson, St. Charles and St. Louis Counties. Two counties, Cole and Pemiscot, were added to the declaration on May 3.

On May 11, 10 additional counties were added to the amended declaration. Those counties were: Barry, Callaway, Clay, Morgan, Phelps, Pulaski, Reynolds, Shannon, Vernon and Washington.



### FEDERAL RESPONSE

On April 21, 1994, President

Summer flooding in Hannibal

### 3. RECOVERY OPERATIONS

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL 93-288, as amended), also known as the Stafford Act, provides the framework for disaster assistance programs.

#### Individual Assistance

Section 408 of the Stafford Act authorizes the President to provide grants to the States to meet disaster-related expenses for individuals or families adversely affected by a major disaster in those cases where such individuals or families are unable to meet such expenses or needs through other assistance. This is called the Individual and Family Grant Program (IFG), and funds can be distributed provided the State is willing to make available a 25% match of the awarded grant.

In the Individual Assistance (IA) Program, FEMA provides the following assistance to individuals and families:

- Temporary housing for victims whose homes are uninhabitable
- Minimum essential repairs
- Disaster unemployment assistance
- Legal services
- Insurance counseling and assistance
- Social security assistance
- Veterans assistance
- Taxpayer assistance
- Crisis counseling

Individual and Family Grants (IFG) -- which are administered by SEMA provides assistance up to \$11,900; 75% federal, 25% state. These IFG grants are for replacement or repair of personal property or personal transportation, funerals, dental or medical disaster-related expenses.

Following the May 11 declaration, four Disaster Application Centers (DACs) were opened in the seven declared counties. Within a week, 600 individuals, families and business owners had applied for some type of disaster assistance help at the DACs.



**Park Hills Resident looks through her picture windows at her flooded front yard. Photo courtesy Dept. Economic Development**

In addition, those who were unable to come to a DAC, were asked to call the toll-free teleregistration number to report their losses. As of September 1994, 446 individuals or families had been granted a total of \$578,746 for the Spring floods. The American Red Cross provided rental assistance to residents staying in the disaster area, very few of whom wanted to move out of the area. The average State administered IFG grant was \$2800.

Following the July 9 declaration, 34 DACs were established throughout the State. A total of 15,443 individual and family grants were awarded, totaling \$23,460,970. The average IFG grant was \$2353.

Following the December 1 declaration, 4 DACs were opened in 4 counties. \$1,326,997 was disbursed to 668 individuals and families. The

average IFG grant was \$3056.

Following the April 21, 1994 declaration, 4 DACs were opened in 5 counties. \$641,990 was disbursed to 749 individuals and families. The average IFG grant was \$2,643.

#### SUMMARY

More than 37,000 Missourians applied for disaster assistance. In the disaster assistance procedure, applicants were interviewed by the Small Business Administration (SBA) about obtaining low interest loans. From the summer flooding, the SBA approved 3,383 applications totaling \$140,115,000. Breaking that figure down further, the SBA approved 2,492 Home and Personal Property Loans totaling \$57,470,800. They approved 570 business Property and Equipment

Loans totaling \$57,889,500. They approved 321 Economic Injury Disaster Loans totaling \$24,754,700.

During the Summer flood, FEMA provided 55 travel trailers and 464 mobile homes to homeless families. At the same time, FEMA processed 19,193 disaster housing checks totaling \$34,449,228.

If applicants did not meet the SBA loan criteria, they were referred to SEMA for help in the IFG program.

More than 17,000 Missourians were eligible for Individual and Family grants totaling \$25.7 million.

As great as these monetary statistics are, the toll on individuals and families was staggering. Almost every Missourian was at some time affected by the floods through inundation of roadways, airports, drinking water and sewage treatment facilities, and by loss of income because of the effect of flood waters on economic activity. Fifty-four shelters and 34 first aid stations were

set up for flood survivors. Over 2.1 million meals were served, and voluntary agencies provided approximately \$65 million in donations of food, clothing, furniture, rent, and home repairs. Although the outpouring of disaster assistance help from neighbors was truly incredible, needs were great. It will take years before the psychological and economic damage from these floods can be overcome.

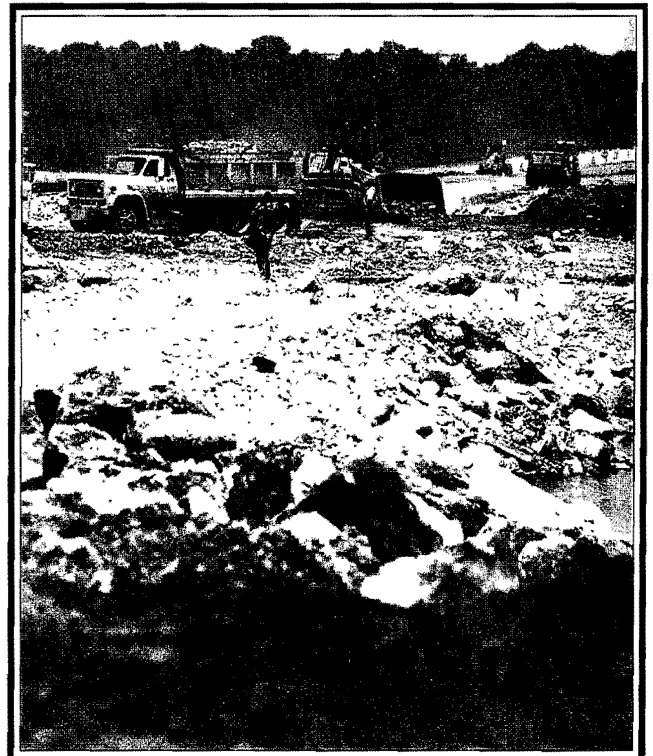
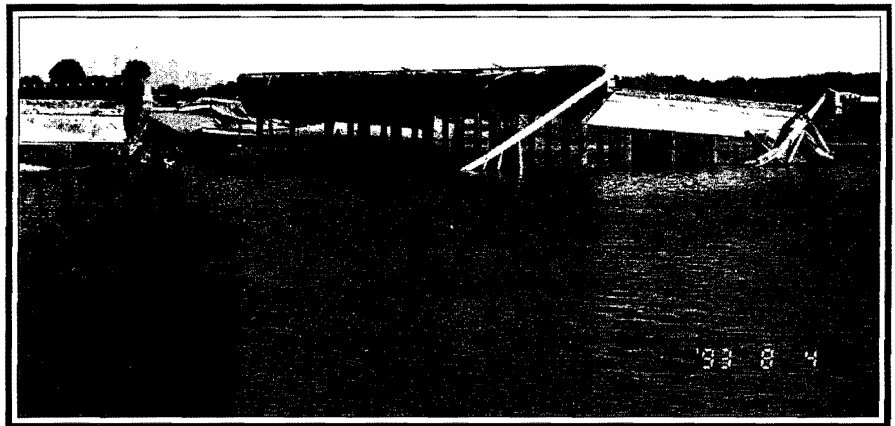
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## Public Assistance

Section 402 of the Stafford Act authorizes the President to make contributions to State, local governments or certain private non profit organizations to help repair, restore, reconstruct, or replace public facilities which were damaged or destroyed by a major disaster. Public Assistance can include the following: Debris removal, Protective measures, Road systems, Water control facilities, Buildings and equipment, Public utility systems, and Other - includes park and recreational facilities.

Although public assistance was not awarded for the Spring floods of either 1993 or 1994, 88 counties and 3 cities received public assistance for the Summer Floods, and 14 counties received public assistance for the Fall flash floods.

As of July 14, 1994, public assistance totaled \$97.8 million, as 2100 checks had been issued for debris removal, road and bridge repair, clean up and repair of water facilities, public buildings and utilities.



**Bridge and Road Repairs following the Summer Flooding,**  
photo courtesy Mo Highways and Transportation Dept



## Flood Recovery Partnership

Governor Carnahan convened the Flood Recovery Partnership in December, 1993 in an effort to improve services to flood survivors. The Partnership was made up of representatives from church-affiliated organizations, not-for-profit disaster relief and charitable organizations, social policy advocacy groups, FEMA and SEMA, and several other State agencies. This group sought a new model of collaboration, communication, and cooperation in order to better serve those affected by disasters.



**Mass feeding and immunization clinic for sandbaggers**

The Partnership had several committees, to include Housing, Rural Issues, Utilities, Communications, Unmet Needs, Data and Client Outcomes. The Committees and the full Partnership group met extensively from December through June, and presented the results of their efforts, along with recommendations to the Governor concerning future preparedness on June 17, 1994.

The results of the Partnership include: (1) setting up an information network to improve communications among public and private agencies, and also to update the Governor's flood recovery resource guide; (2) providing technical assistance to local unmet needs committees on good case management practices and knowledge

of resources, and serving as ombudsman to solve problems for local communities; (3) providing direct assistance to flood survivors with approximately \$200,000 in donated funds made available to local unmet needs committees as "gap grants"--small grants to help fill gaps between available resources and a flood victim's need.

## Flood Plain Management

Governor Carnahan issued Executive Order 93-40 on October 22, 1993, establishing a Task Force on Flood Plain Management. The Task Force brought together in a single forum many of those who advised the Governor throughout the flood disaster. He charged the Task Force with evaluating the current status of flood plain management in Missouri, and recommending ways to decrease the risk to life and property due to flooding. He asked the Task Force to specifically consider: (1) the building, rebuilding or relocation of levees; (2) State highway and road projects in the flood plain; (3) expenditure of public funds for projects in flood plains which require State action or approval; and, (4) long term policy regarding development of housing and other private and public structures in flood plain areas.

Membership on the Task force included two members from the Missouri House of Representatives, two members from the Missouri Senate, the Directors of the Departments of Agriculture, Natural Resources, Conservation, Highways and Transportation, Economic Development, Office of Administration, and State Emergency Management Agency. Also included were the executive director of the Missouri Housing Development Commission, the State Treasurer, and representatives from the Missouri Municipal League, Missouri Association of Counties, Missouri Farm Bureau, Conservation Federation of Missouri, and the Governor's Office.

Under the chairmanship of the Director of the State Emergency Management Agency, the Task Force on Flood Plain Management held an organizational meeting on November

9, 1993. At this session, the Chairman designated four working committees to examine the issue of flood plain management in depth. The four committees (Relocation, Flood Plain Usage, Levee, and Legislation) met extensively November through May, and reported back to the full Task Force at monthly meetings. Although each Committee had 4-5 core members that were expected to participate, Task Force members were encouraged to attend and participate in all committee sessions. Experts and the general public also attended.

The Task Force was unanimous in the belief that continuing current flood plain management policies without modification was unacceptable. The cost to Missouri citizens in terms of lives, property damage, and psychological trauma was too great to repeat past mistakes. As a result, the Task

Force made seven recommendations that were felt would ensure the devastation of '93 would not be repeated:

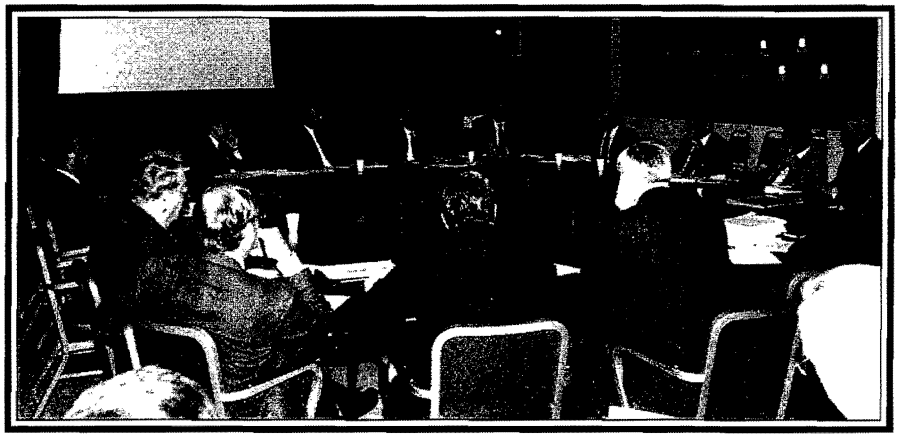
(1) Create a multi-jurisdictional body to recommend flood plain management policy; and, empower and resource a designated state agency to implement flood plain management policy

(2) State government lead by example in flood plain management

(3) Assist people to move from flood plains

(4) Establish state standards for new and existing structures in flood plains

(5) Regulate hazardous material in flood plains



Meeting of the Governor's Task Force on Flood Plain Management

(6) Oversee levees

(7) Encourage federal reform of the National Flood Insurance Program

The Task Force presented their Report and Recommendations to the Governor on July 14, 1994.

## 4. HAZARD MITIGATION

### Interagency Hazard Mitigation Team Report

Section 404 of the Stafford Act authorizes the President to contribute up to 50% of the cost of hazard mitigation measures which the President has determined are cost-effective and which substantially reduce the risk of future damage, hardship, loss, or suffering in any area affected by a major disaster. Regulations implementing the Stafford Act (44 CFR, Part 206) call for the formation of an Interagency Hazard Mitigation Team (IHMT) following each disaster. The purpose of this team is to identify practical measures that can reduce the vulnerability of communities to similar disasters in the future. Reports are to be completed 90 days after the closing period of a disaster.

In response to the floods of '93, FEMA and SEMA convened a IHMT meeting in June, and prepared a draft

report. Due to continued flooding a second meeting was not convened until September at which time another draft was prepared and circulated for approval.

The Report recommended 14 items the Team felt would mitigate the flood hazard within the State of Missouri:

(1) Establish State floodplain management policy and guidelines, and consider legislation to implement the policies

(2) Develop a long-term floodway plan

(3) Consider development of policies and legislation to provide coordination for levees

(4) Remove substantially-damaged and repetitively-damaged structures from the floodplain (5) Create a State "market value" definition

(6) FIA should specify an A-zone

designation behind levees

(7) Review Mississippi/Missouri River hydrology

(8) FEMA and the State should work together to provide additional staff for community compliance activities

(9) Expand NFIP education efforts

(10) Enforce hazardous materials containment/relocation standards

(11) Require that identification of owner, location and contents be placed on all hazardous material containers

(12) Develop a public awareness program regarding household hazardous waste and establish hazardous waste dropoff points after major floods

(13) Organize a committee to prepare and present seminars and/or pamphlet(s) on flood preparedness

(14) All agencies involved with weather-related disasters should subscribe to a service providing current weather and river information

# State Hazard Mitigation Plan

The Stafford Act requires state and local governments to prepare and implement hazard mitigation plans as a method for evaluating the natural hazards in the disaster area and identifying appropriate action to reduce the risk from these hazards. States must update their Plan (409 Plan) within 180 days of the date of a disaster declaration.

Once the Plan is updated and reviewed by FEMA, the State becomes responsible for monitoring and evaluating implementation of the Plan, and for submitting annual progress reports to FEMA on its implementation. The State Hazard Mitigation Plan is the basis for identification of measures to be funded under the Hazard Mitigation Grant Program.

The State Hazard Mitigation Plan was submitted to FEMA in August and contained the following initiatives:

## Mitigation Coordination

(1) Establish a permanent State Hazard Mitigation Team composed of representatives of primary State agencies.

(2) Encourage each county/community in Missouri to designate one person to serve as Hazard Mitigation Coordinator for that jurisdiction.

(3) Encourage local/county/regional personnel selected as Hazard Mitigation Coordinators to develop hazard mitigation strategies in their

communities.

## Acquisition/Relocation/Retrofitting

(4) Remove substantially-damaged and repetitively-damaged structures from the flood plain.

## Flood Plain Management

(5) Create a multi-jurisdictional entity to advise the Governor on structural and non-structural projects, and institutional and legal strategies for flood plain management; and, empower and resource a designated State agency to develop and implement an effective overall strategy for floodplain management.

(6) Require State agencies to lead by example by discouraging construction of state facilities in flood plains.

(7) Actively manage flood plains in Missouri.

(8) Encourage the State to adopt legislation to establish a permit program for construction or modification of levees; and, inventory and describe all existing levees for the purpose of developing policy guidelines and design criteria.

(9) Provide additional staff for community compliance activities.

## Public Safety

(10) Enforce hazardous material containment/relocation standards.

(11) Require that identification of owner, location and contents be placed on all hazardous material containers.

(12) Develop a public awareness program regarding household hazardous waste and establish hazardous waste drop-off points after major floods.

## Emergency Preparedness

(13) All agencies involved with weather-related disasters should subscribe to a service providing current weather and river information.

(14) Upgrade the National Oceanic and Atmospheric Administration (NOAA) Weather Radio system to cover the entire State of Missouri.

(15) Encourage each county in Missouri to have a trained emergency management director at all times.

## Earthquakes

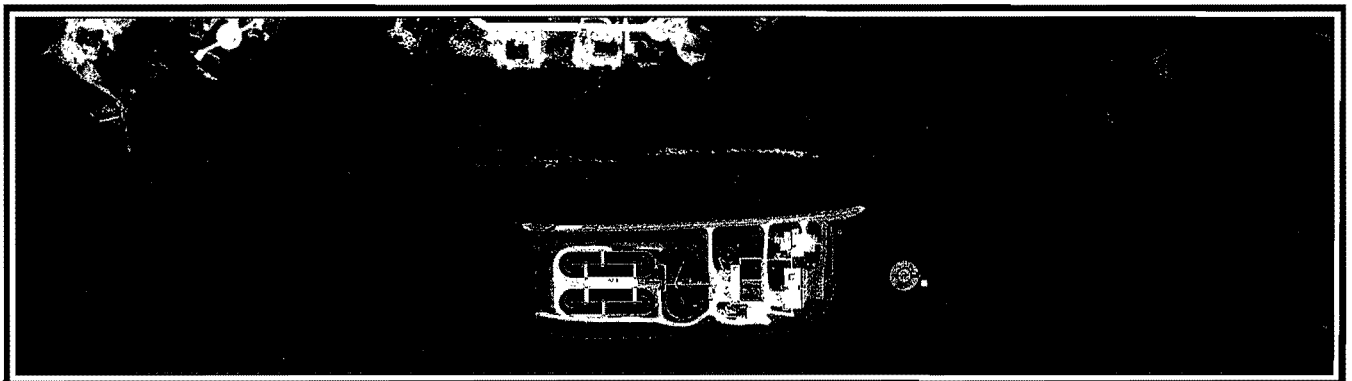
(16) Review the adequacy of the State of Missouri response plan for large magnitude earthquakes.

(17) Develop a more accurate earthquake zonation map for Missouri.

(18) Develop a response plan for warning people located downstream from dams.

## Drought

(19) Develop a drought hazard mitigation plan at the state and community level.



## Hazard Mitigation Grant Program

Section 404 of the Stafford Act authorizes that after a Presidential declaration of a major disaster requiring public assistance under Section 406, that grants can be provided to affected communities. For the floods of 1993 and 1994, The Volkmer Bill changed funding for Hazard Mitigation for 15% of the total of Individual Assistance and Public Assistance. It also changed the Federal - State match to a 75 - 25% match. Communities must participate in the National Flood Insurance Program to be eligible for consideration.

As guidance for spending this money, the Federal Government established priority for either the elevation of flood damage structures or the public acquisition (for open space use) of flooded property, and the relocation of affected homes or businesses to areas outside of identified flood hazard areas. It also was decided that Community Development Block Grant (CDBG) funds from HUD also could be used to support this priority. States were requested to appoint a State Hazard Mitigation Officer as a point of contact to work with FEMA on these buyout projects.

The State played an important role in this process since it is held responsible for setting project priorities and distributing both FEMA HMGP and CDBG funds. The State was required to submit an Administrative Plan to FEMA outlining how HMGP funds would be administered. Mindful of the Federal guidance, Governor Carnahan established the priority that these HMGP and CDBG funds would be used for buyout of homes (primary residences) in the flood plain and relocation of residents to safe permanent housing.

The State Hazard Mitigation Officer (SHMO) sent letters to affected communities soliciting applications for this program, at the conclusion of Disasters 995 and 1006. Disasters 989

and 1023 were ineligible for this program since there were no public assistance funds awarded. It was explained that grants would be made on a 75/25% cost sharing basis, and that in-kind service and equipment/materials could be used as the match requirement. The SHMO established project selection criteria based upon federal guidance and guidance in 44 CFR. HMGP funds could be used in combination with other federal, state,

or local programs, but could not duplicate or replace existing programs.

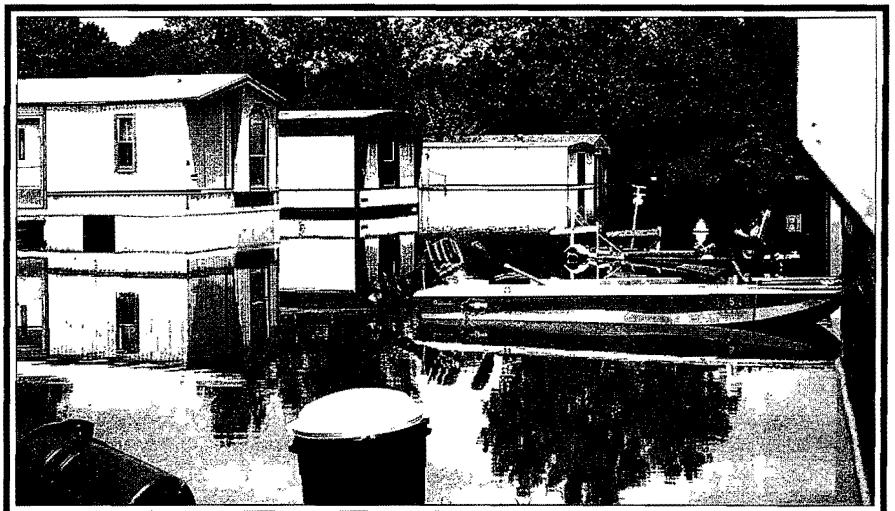
A total of 57 communities applied for HMGP funding. The Governor appointed a committee to review the applications and chose those who best fit the criteria outlined in the Federal Regulations, federal and State priorities. Out of these applications, 49 were chosen as part of the program.



(Above: ) Home located in the flood plain in North Jefferson City.

Photo courtesy Mark S. Schreiber, Dept of Corrections

(Below:) Mobile Home Park in Starling photo courtesy Economic Development





## Missouri Community Buyout Program

The floods of 1993-94 pointed out the painful fact that too many Missourians were living in the flood plains. Federal Emergency Management Agency (FEMA) estimated that of the 216,000 Missouri households in designated flood plains less than 22,000 National Flood plain Insurance Policies (NFIP) were in effect. For many families their largest single investment is their home. The flooding and structural damage to many homes gave homeowners two choices: 1) try to sell their home for pennies on the dollar or 2) fix their home up, move back in and wait for the next flood.

Under Hazard Mitigation Section 404 funding, Missouri was eligible for \$30 million for hazard mitigation projects. Likewise Housing and Urban Development (HUD) Director Henry Cisneros made a commitment to giving Missouri disaster relief funds for housing. These funds would come under the jurisdiction of the Community Development Block Grant (CDBG) program. In 1993 and 1994, the HUD disaster funds allocated to Missouri totaled \$41 million and \$57 million respectively. During the course of the program, FEMA made available Public Assistance Demolition (Sec. 406) funds for the buyout program. That meant more dollars were committed to moving Missourians out of the flood plain.

Governor Mel Carnahan took the lead by establishing the Missouri Community Buyout Program which would utilize the Sec. 404 funds and a 25% State match for the buyout/relocation program. Because he felt so strongly about helping Missourians move out of harm's way in the flood plain, Carnahan said the Sec. 404 funding would be matched dollar for dollar with the CDBG funds for housing. Additionally under his guidance, the Governor's office issued his priorities for the Missouri Community Buyout Program - that primary

residences would be purchased from willing sellers so the families could move out of the flood plain. The Governor was not interested in allowing citizens to rehabilitate their property and face future flooding in the flood plain nor was he interested in elevating homes in the flood plain.

The basic concept of the Missouri

Department of Economic Development (DED), Missouri Housing Development Commission (MHDC) and a representative from the Governor's office reviewed the applications and made recommendations to the Governor on funding projects.

The rules for deciding projects were simple: purchase primary residences,



North Jefferson City, photo courtesy Mark Schreiber, Dept of Corrections

Community Buyout Program is that the local community identified flooded structurally damaged primary residences, asked the owners if they were willing to voluntarily sell their home. Then the local government would demolish the structure once the property was purchased. The land would then revert to public ownership for perpetuity. This public land could be used for open space, parking lots, wetlands or recreational facilities such as softball fields. But the local community knew that once they acquired the property they would not qualify for future disaster assistance for facilities on the property.

Fifty-seven Missouri communities submitted applications for buyout funding. Because there were limited funds, a committee composed of a representative of State Emergency Management Agency (SEMA),

vacant land to keep from building a residence in the flood plain and mobile home pads. This did not include vacation homes, rental or commercial property in the flood plain nor did it include the purchase of mobile homes. The local communities retained title to the land and future building on the now public property would be prohibited. It has been conservatively estimated that Missouri taxpayers will save more than \$200 million in future flood disaster claims.

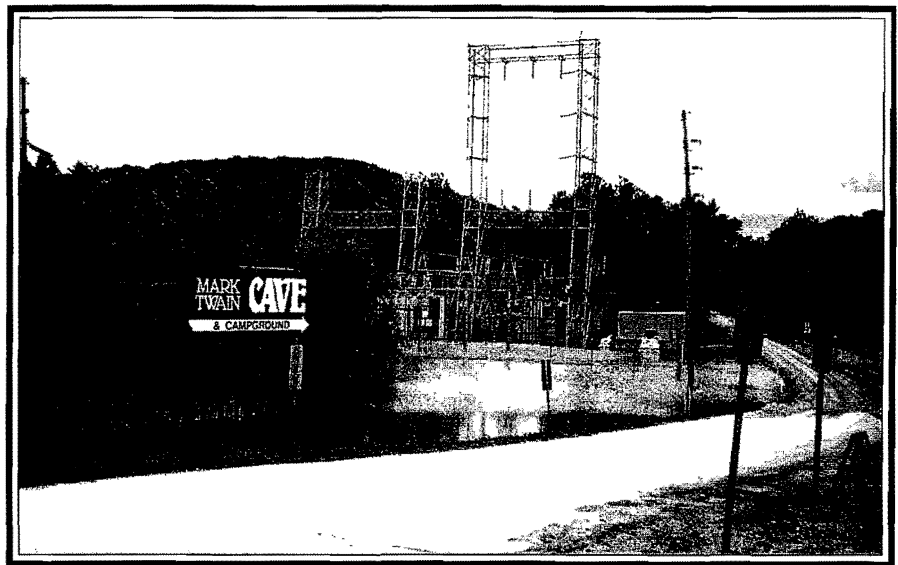
With the 1993 monies from the summer flood, 42 projects were funded with the combination of Sec. 404 (\$30 million) and CDBG funds (\$30 million). These communities targeted the purchase of approximately 2400 primary residences, over 1100 mobile home pads, 4 apartment buildings (senior and public housing project) and 385 vacant lots. These lots were

scattered among the primary residential properties so their purchase became necessary to stop future construction on targeted land. With the 1993 monies from the November flooding, 2 projects were funded with the same matching monies. The communities were Waynesville and Fredericktown targeting 20 primary residences, 1 vacant lot, 10 mobile home pads and 12 rental (public housing) properties.

Additionally with the 1993 CDBG monies, the CDBG program also funded 2 communities for \$3.7 million that would purchase 225 primary residences in the flood plain.

With their 1994 CDBG funding, the Missouri CDBG will give approximately \$7 million to 13 communities to buy 435 primary residences in the flood plain. They will give communities approximately \$8.7 million to 13 communities for commercial buyouts (approximately 100 businesses) located in the flood plain.

The Community Buyout Program allows the local government to purchase property at pre-flood values, hire consultants or title companies, and issue the bids for the demolition. SEMA and CDBG staff provide the technical and legal guideline assistance, issue the funds as the programs progress and monitor the program. As an added plus, SEMA held a one-day conference for all buyout communities to discuss common problems, discover how communities solved problems and network. Communities whose programs were in more advance buyout and/or demolition stages could help communities that were just getting started with their programs. SEMA and CDBG auditing procedures help communities avoid costly mistakes.



## Flood Activity Reports 1993 and 1994

**April 1** - Hannibal - the Mississippi River goes above flood stage from upstream rains.

**April 10** - Early Spring rains begin in Missouri.

**April 15** - Rains throughout the mid-west on already saturated soils begin to cause problems on Missouri Rivers and streams especially along the Mississippi.

**April 23** - Flooding in St. Charles with 200-250 homes affected. Lincoln County dike at Winfield reported to be seeping, placing 75 homes in jeopardy.

**April 24** - Evacuations along the Mississippi in St. Charles and Lincoln Counties. Pike County reporting some evacuations in Clarksville.

**April 25** - St. Charles County performing damage assessment.

**April 26** - SEMA conducted preliminary damage assessment in St. Charles County. Lincoln, Marion and St. Louis Counties report flooding.

**April 27** - SEMA conducts damage assessment of St. Charles and Lincoln Counties by boat. Recommends State of Emergency to Governor.

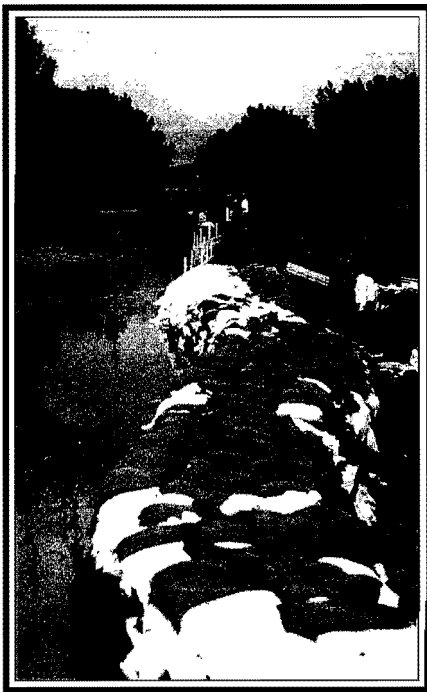
**April 28** - Governor Carnahan declares State of Emergency for St. Charles and Lincoln Counties.

**April 30-May 1** - SEMA/FEMA conduct joint damage assessment in preparation for a Federal Disaster Declaration.

**May 3** - Governor Carnahan asks the President for a federal disaster declaration for St. Charles and Lincoln Counties, and other areas along the Mississippi River. Preliminary estimates indicate approximately 735 families were in need of temporary housing.

**May 4 - Oct 21** - Department of Social Services, Division of Family Services made available USDA commodity foods for mass feeding these were given to the Red Cross, Salvation Army, food banks, community action agencies, schools and churches. Division of Family Services distributed 1,054,821 pounds of USDA donated food valued at \$783,815. This provided 1,602,838 meals to flood victims and disaster workers.

**May 6** - Governor Mel Carnahan declares a State of Emergency for 6 more flooded counties.



**May 11** - Missouri receives a Presidential Declaration for Individual Assistance for St. Charles and Lincoln Counties. Before the end of this flooding incident, 8 counties on the Mississippi River received a Presidential Declaration for flooding. The eight counties were: Marion, Ralls, Pike, Lincoln, St. Charles, St. Louis, Jefferson and Ste. Genevieve. A total of 10 Disaster Application Centers (DACs) were opened during this period. Many residents used the Federal 800 Tela-registration number.

**May 24** - Incident period is closed.

**June 10** - Late Spring rains begin - impacts the Mississippi and Missouri Rivers and adjacent communities.

**July 1** - Governor Mel Carnahan declares a State of Emergency for 18 flooded counties along the Mississippi and Missouri Rivers

- The State Emergency Operations Center (SEOC) is opened for 24-hour operation.

- Joint Preliminary Damage Assessments (FEMA, SEMA and SBA) requested.

- Route 54 Mississippi River crossing at Louisiana closes due to high water.

**July 2** - The Mark Twain Memorial Bridge carrying Route 36 across the Mississippi River at Hannibal closes because of floodwater.

- Renz Correctional Center is evacuated; inmates are moved to either the Central Missouri Correctional Center or the Chillicothe Correctional Center. Members of C-STAR (Corrections Special Tactics Assault and Response Team) assist in the two-day evacuation.

**July 3** - Inmates at the Farmington Correctional Center get involved in sandbagging operations along the Mississippi River to save Ste. Genevieve.

**July 4** - National Guard activated for State Emergency Duty.

**July 5** - Inmates at the St. Louis Community Release Center assist with sandbagging in St. Charles County.

**July 6** - Governor requests 2nd Presidential Declaration originally for 5 counties, by the end of the day 40 additional counties are added to the amended request.

- The Quincy Bayview Bridge is the only Mississippi River crossing open between Iowa and St. Louis. Pumps are keeping water from covering Route 24 bridge at West Quincy.

- The rising Missouri River causes Rulo Bridge in Holt County to close. The bridge carries Route 159 traffic across the river into Nebraska.

**July 6 - 27** - Hundreds of inmates and staff from Western Missouri Correctional Center sandbag the

Missouri River in communities such as Oregon, Craig, Pattonsburg, Bigelow, Corning, St. Joseph and Holt County.

**July 7** - St. Joseph city crews fill gaps in the Missouri River levee as water continues to rise. Route 6 is threatened to close. More than 40 roads are under water in northwest Missouri.

**July 7 - 9** - Inmates and staff from the Boonville Correctional Center filled approximately 150,000 sandbags that were used along levees at Boone Femee Creek, Bartlett Creek, Hodel Levee and Woodridge Levee. Additionally during the month, these inmates worked with the Red Cross moving articles and food products to various distribution points as the supplies were needed.

- 65 Inmates and staff from the Jefferson City Correctional Center sandbagged along Turkey Creek in Jefferson City, Hwy. 179 and at the Union Pacific Railroad tracks.

- Inmates and staff from the Jefferson City Correctional Center began sandbagging at the State Data Processing Center in Jefferson City. Inmates set up sandbagging operations at the City garage.

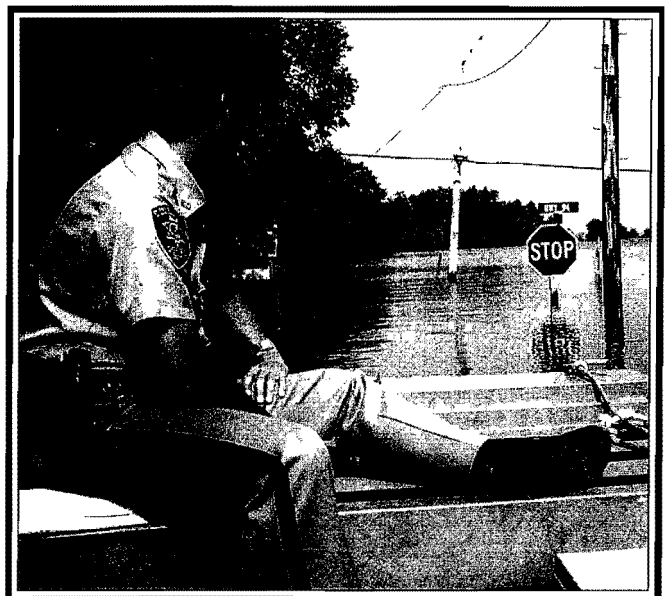


Photo courtesy Cpl Charles Bent, Mo Water Patrol

**July 8** - Brunswick area rains measure almost 11 inches above normal through the July 4 weekend. Highway crews are flagging motorists for detours through Brunswick.

- Missouri River flooding closes Route 240 at Glasgow River bottoms. Other routes closed include: Route 24 in Dewitt and Brunswick, Route 5 near Glasgow, Route 65 near Chillicothe and Waverly, Route 127 near Sweet Springs.

- Amtrac service between St. Louis and Kansas City stops for second day in a row. Flooding from the Missouri River and its tributaries causes delays on freight routes between St. Louis and Kansas City.

- Route 36 west of Chillicothe closes, forcing local motorists headed to Kansas City to detour along I-70 to the south or detour on smaller roads through Trenton to the north.

- Alexandria more than 11,000 acres of farmland and five miles of Route 61 are flooded because of at least two levee breaks. LaGrange and Canton also are threatened

- 903 National Guard troops have been called up for flood duty. This is the fourth largest call-up in 60 years. Ten people have died because of flooding.

**July 9** - President Clinton declares 5 counties federal disaster areas for Individual Assistance.

- National Guard activates Task Force Northeast.

- FEMA activates Disaster Field Office (DFO) in Earth City (St. Louis County). The first five counties are: Pike, St. Louis, St. Charles, Lincoln and Jefferson.

**July 10** - 44 counties added for IA.

- SEMA begins staffing the DFO.
- SEOC 24-hour operation continues in Jefferson City.

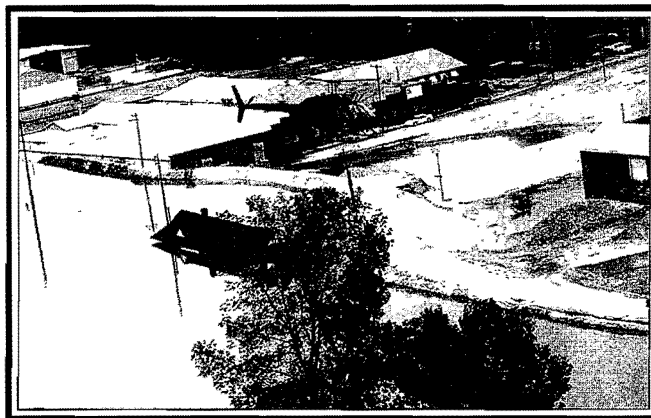
**July 11** - National Guard activates Task Force Southeast.

**July 12** - National Guard activates Task Force Northwest.

- The flood is idling thousands of barges, costing barge owners an estimated \$2 million a day. Transcontinental train traffic is diverted through St. Louis as rising floodwater submerges rail lines for hundreds of miles.

**July 13** - First 5 DACs open in St. Louis area.

- Heavy rains return in Mid-west



Ste. Genevieve, photo courtesy Mo National Guard

- 30,000 people affected by Mississippi River flooding in Mid-west.

- Attorney General Jay Nixon establishes a toll-free Consumer Protection Hotline on price gouging.

- Inmates from the Potosi Correctional Center assist the inmates from Farmington Correctional Center in an effort to save Ste. Genevieve.

**July 14** - Health Department submits a request to U.S. Dept of Health & Human Services for assistance with health and medical assessment and surveillance.

- Part of Route 159 bridge that crosses the Missouri River north of St. Joseph washed away, the flood waters are threatening to wash away the road too. After local citizens evacuate the area, the Highway Department stopped dumping rock in the area trying to save the road.

- Heavy rains, as much as 3.5 inches an hour, close Route 9 between Riverside and North Kansas City.

- The Mississippi River closes Route

177 north of Cape Girardeau. Water is 2-3 feet over the road and rising.

- Miles of Missouri highways are underwater. The Highway Department offers a number of services including providing aggregate for roads, sand and bags for bagging levees, delivering surplus median barriers for levee reinforcement, furnishing barricades for county roads and loaning equipment for moving sandbags.

- Earthen dam at Trenton threatened. Guard and Corps of Engineers (COE) furnish sandbags and pump to lower water level at lake.

- In Glasgow a railroad embankment acting as a levee breaks, washing out about 1,000 feet of track and sections of nearby highways. More than 150 people are evacuated from downstream New Franklin after the break.

**July 15** - About 1,000 feet of Route D in Carroll

County is washed away.

Residents are evacuated from flooded areas. Highway Department workers are building an earthen dam, waiving moving restrictions to speed movement and helping Scott County build a temporary road for access. OATS and similar operators are cleared to use vehicles for flood relief.

- Route 63 north of Jefferson City is closed for the first time in more than 20 years. Department crews sandbagging Route 54 north of Jefferson City to keep the only other highway open from the north.

- Nebraska Department of Roads crews drive across Missouri River bridge at Rulo to dump rock on the Missouri side to keep the approach from washing away. Missouri had the rock but couldn't get to the bridge, Nebraska could get to the bridge but didn't have the rock - at first. Nebraska eventually found enough in stockpiles.

- More than 500 square miles of land are flooded forcing evacuations of over 15,000 Missourians. A total of 49 counties and the City of St. Louis have now been declared federal disaster areas.



- The Missouri River at Glasgow is attempting to cut a new channel that would bypass the Route 240 bridge.

- Rail traffic between Kansas City and St. Louis for four railroads is suspended because the Union Pacific line near the Missouri River is under 5 inches of water near Hermann. The only rail link still open between Kansas City and St. Louis is the Burlington line through Springfield.

- Algoa inmates began working 300 hours sandbagging, worked a total of 240 hours sandbagging at Rocheport, and 585 hours sandbagging to keep the road to Algoa opened.

- Dam in Trenton in danger of failure.

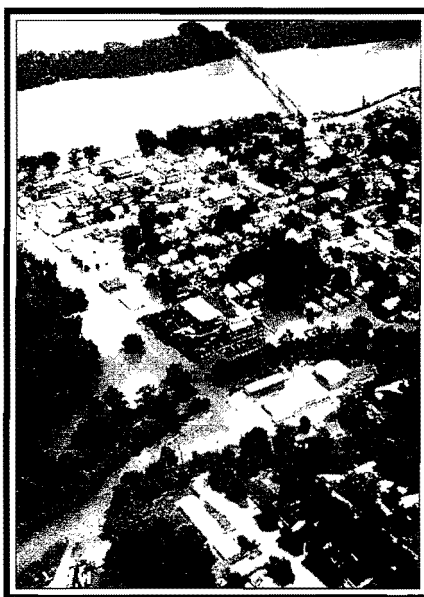
- Hermann faces potential power failures from flooding.

- Water treatment facility in north-east Saline County needs a pump to supply water for treatment.

**July 15 - Dec 15** - Hardin Cemetery Incident (Ray County) the Missouri River washed out 769 vaults/caskets from the cemetery. Casket recovery operations involved Missouri Funeral Directors Association, Ray County and Carroll County Sheriff's Departments, Missouri National Guard, Water Patrol, Conservation Department, SEMA and volunteers. 570 remains were recovered. Because 448 were not identified, the National Disaster Medical Services helped identify the remains. Ceremonies for the reburial of the remains were conducted in a new cemetery site around Thanksgiving, 1993.

**July 16 through August 13** - Department of Social Service, Division of Family Services starts issuing Emergency Food Stamps under USDA disaster guidelines. Family Services issued \$5,525,741 in food stamp coupons to 17,471 households (59,498 individuals).

**July 16 - Oct 16** - Department of Agriculture establishes toll-free hotline for emergency services and assistance for farmers and rural families.



Hermann, July 16, 1993 photo courtesy Nick Decker, DNR

**July 16** - The approach to Route 118 bridge near Big Lake in northwest Missouri was lost and repaired overnight.

- Sandbaggers lose the battle to the Mississippi River which covered 14,000 acres in Northeast Missouri including the entrance to the Bayview Bridge in West Quincy. Sabotage is suspected on the Quincy Levee - An Illinois man becomes the main suspect and is found guilty of sabotage by a Missouri Court in November. He receives a stiff sentence. The mayor of Quincy estimates it will be 11 weeks

before the bridge is opened.

- The Missouri River breaks through a levee at West Quincy threatening Rte 61. The Missouri River converges with the Mississippi River north of St. Louis, 20 miles above where the rivers normally converge.

- More than 1,400 National Guard troops have been called to duty.

- 16 Red Cross and five Salvation Army shelters are now open for flood victims.

- Routes 25 and 74 at Dutchtown close as department workers help the community build massive sandbag walls to protect the town from rising floodwater.

- St. Charles County evacuates three major mobile home parks.

- Platte County drinking water wells flooded.

- SEMA/FEMA doing preliminary damage assessments for public assistance.

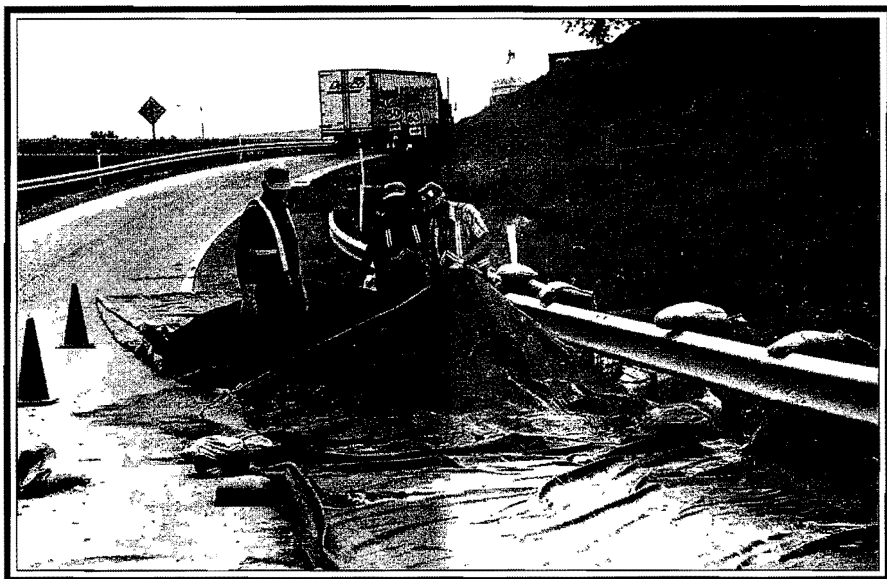
- USAR helicopters place rocks on levee break in Glasgow bottoms. This was an Army Corps of Engineers project.

**July 17** - A flood summit is held in Arnold among Missouri state and elected officials, federal and regional officials and President Clinton. The state estimates the total losses for the Midwest is \$2.7 billion.

- Mississippi River bridge in Perry



Hardin Cemetery, Ray County photo courtesy MO. Funeral Directors Assn.



**Sandbagging Hwys 54 and 63 north of Jefferson City. Photo courtesy Mo. Highway and Transportation**

County closed.

- Rte. 61 north of Hannibal closed.
- No trash pickup in Ray County.

**July 17 - 18** - Inmates at the Moberly Correctional Center used 100 tons of sand to fill sandbags inside the institution for the Highway Department. They also began laundry operations for the Red Cross disaster effort.

- The Kansas City Community Release Center sandbags in Parkville area.

**July 18** - National Guard deactivates Task Force Northwest.

- Most of the 200 miles of the Katy Trail is under water. Tourism is down as travelers assume Missouri is covered with water.

- The Route 51 bridge spanning the Mississippi River at Chester is closed because the river stage is past the 45-foot mark.

- Route 63 north of Jefferson City reopens after flood water closed the highway for three days. It was the first major road closed by the flood to be reopened.

**July 19** - Chemical storage tanks floated off foundations in St. Louis.

- Evacuation of 200 families in St. Louis County because of levee break

- Evacuation of 150 families in Ste. Genevieve as precaution against possible levee break.

- UE power outage south of Cape Girardeau.

- Evacuations ordered for Neeley's Landing, Allenton, Dutchtown and 50 families in Bellefontaine-Neighbors.

**July 20** - Public Assistance declared for 13 counties including the City of Jefferson.

- Rivers are falling in northeast Missouri. The Mississippi River is

cresting in the southeast. Roads and bridges are closed in about 200 locations.

- Water supply in Portage de Sioux cut off.

- FEMA trailer help citizens in LaGrange, Alexandria, Canton and Marion.

- Rte 24 near Quincy closed.

**July 21** - Tri-County water plant in Jackson County is isolated by flooding.

- 52 families evacuated in Scott County, 26 families evacuated in Perry County.

- Levee break on Des Peres River in St. Louis forces evacuation of 164 families.

**July 22** - Emergency crews discover the Missouri River has washed away a 100-foot section of Route 94 near Defiance in St. Charles County.

- Repair work begins on the Route 159 Rulo Bridge in Holt County. The bridge closed on July 6.

- Several state highways in Holt County are covered with water including Routes 59, E, N and C. Department maintenance crews have worked 24-hour days to keep the roads in operation.

- Levee break in Lincoln County near Old Monroe.

- Grand Pass levee in Saline County



**Even Governor Carnahan rolled up his sleeve and assisted with sandbagging. Photo courtesy Mo. National Guard**

is in danger of breaching.

- Evacuations at Bean Lake and Sugar Lake in Platte County; Pattonsburg in Daviess County.
- Ste Genevieve issues boil water order.



**July 23** - Health Department requests additional federal assistance from Health and Human Services for \$750,000 for community sanitation, disease and injury surveillance, vaccines and general support expenses.

- High water closes I-29 from St. Joseph to the Iowa line. The Highway Patrol diverts traffic to Route 71 which creates a tremendous traffic jam.

**July 24** - Up to 5 inches of rain in northwest Missouri bursts levees, floods towns, swallows highways, closes bridges and forces the evacuation of a National Guard base. The Highway Patrol reports water is climbing an inch a minute over Route 136 near Rock Port.

- St. Joseph loses water supply; 20,000 affected including state office buildings in the area.
- National Guard reactivates Task Force Northwest.

**July 25** - Levee on the Mississippi River near the McBride area of Perry County breaks - flooding the area, 90 families evacuated.

- Fairfax and Tarkio water plants shut down, water conservation measures in effect for Kansas City, 3000 in Platte County without water.
- Rosecrans Field flooded.

**July 26** - Department of Health

activates its Emergency Response Plan and opens its Department Situation Room (DSR).

- Missouri River floods the St. Joseph water treatment plant - about 85,000 people lose drinking water.
- Perry County EOC moved to higher ground as a result of levee break.
- Flooding fatality in Bates County brings the total flooding deaths to 21.

**July 27** - The number of roads and bridges closed in the State is about 250.

- Route 63 north of Jefferson City closes for the second time.

- I-29, closed from St. Joseph to the Iowa border, reopens. It had been closed since July 23, forcing department crews to set up a series of detours.

- Columbia water treatment plant in McBaine is threatened.

- Water purification units from Ft. Riley arrive in St. Joseph.

- Levee break in Platte County affects Waldron, Farley and Parkville.

- Levee in Kansas City protecting central industrial area may overtop, evacuation ordered.

- Lexington removes their water pumps to prevent contamination.

- St. Joseph power plant in danger of flooding, levee protecting it is in danger of breaking, 6000 ordered evacuated.

- Carrollton sewer and water treatment plant in danger.

**July 28** - Health submits a separate request to HHS for vector control - HHS gave Health Department \$200,000 for direct assistance for vector control.

- The Missouri River bridge at

Jefferson City closes as crews secure a propane tank near the roadway. The road reopens overnight.

- Flood waters rage through the Renz prison complex (north Jefferson City) with incredible force. It is evident the complex will sustain massive damage.

Caskets surface from Hardin, Mo Cemetery (Ray County) which is flooded by Missouri River. - Three cemeteries are underwater in Ray County.

- Notice of Unusual Event (because



Water reaching the second floor of the main administration building at Renz Prison 7:30 p.m., July 28 photo courtesy Mark Schreiber, Mo Dept. of Corrections

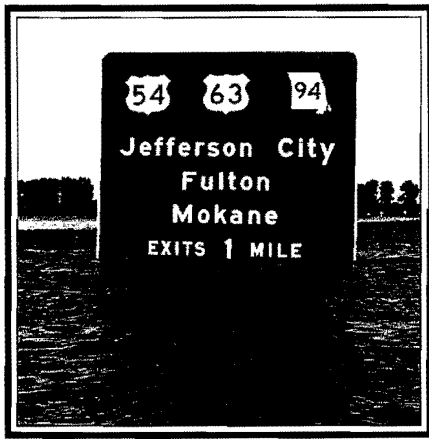
of flooding) at Cooper Nuclear Station across from Rock Port is cancelled.

- Gasoline storage tanks in Riverside are in jeopardy.

- Guard receives requests to fly dialysis patients from Hannibal to Pike County Memorial Hospital.

**July 29** - All state employees working in Jefferson City and living north of the Missouri River are sent home and will not return to work until August 4. The Missouri River bridge at Jefferson City closes late in the afternoon. Highway 54 north of Jefferson City closes. Jefferson City is cut off to the north.

- Attorney General Nixon enacts emergency price gouging rule to



July 28, 1993 photo courtesy Mark Schreiber Dept of Corrections

protect Missourians.

- Road crews put up barricades along I-70 near Rocheport as rising Missouri River waters threaten the bridge approach from the west. The bridge is the last remaining Missouri River crossing between Kansas City and St. Louis. Barricades on the upstream side of the road have 3 to 4 inches of water lapping at them. The bridge is also threatened by a break away barge, but the barge is secured south of Boonville before it reaches the bridge. The water is rising a foot every two hours.

- A section of railroad bridge crossing the Missouri River at Glasgow collapses. Two steel spans from the bridge damage the nearby Route 240 bridge.

- Fuel tank containing 10,000 gallons of gasoline leaking in Perry County.

- Building containing fertilizer collapses in Jackson County - drains contents into river.

- CAP reports barge on fire and drifting free 20 miles north of Quincy.

**July 30** - Propane tanks force evacuations of 11,000 in St. Louis

- Chesterfield levee breaks allowing flood waters to overrun a suburban airport and hundreds of businesses forcing the closing of Route 40 west of St. Louis.

- Floodwater in Missouri and Kansas sever major railroad routes to Kansas City, virtually shutting down the nation's second-largest rail hub.

Railroads are detouring hundreds of miles from regular routes to avoid Kansas City, resulting in congested tracks and delays of up to three days.

- To date, the Flood of 1993 has claimed 45 lives, 24 of those in Missouri. More than \$10 billion in damage has been caused across nine Midwestern states, including \$2.7 billion in Missouri. The City of St. Louis and 59 Missouri counties have been declared federal disaster areas.

- The Missouri River crests at 38.6 feet in Jefferson City - Hwy. 54 north-south lanes have collapsed from the force of floodwater over the road

- I-70 bridge at Rocheport is reduced to one lane open

- Railroad bridge at Glasgow collapses.

- Columbia water system threatened

- Approximately 75 coffins are seen floating down the Missouri River in Ray County.

**July 31** - Bulk propane tank facility at River Des Peres is flooded, 20 filled tanks are floating in the river. Tanks are leaking - evacuations ordered.

- Chesterfield levees have failed and whole bottom area is flooded. More evacuations ordered in St. Charles County.

- 115 caskets have been retrieved so far in Ray County.

- St. Joseph issues a boil water order.

- City of Kimmswick evacuated.

**Aug 1** - Diving operations in progress to shut off valves and stabilize floating tanks in River Des Peres area.

- Monarch Levee in Chesterfield breaks - 500 businesses, Spirit of St. Louis Airport, St. Louis Correctional facility evacuated.

- Missouri River crests at 39.6 feet in St. Charles, Mo.

- Mississippi River crests at 49.58 feet in St. Louis.

- Highway Department District 6 crew leader, Jon Wade Smith is killed while putting up signs at Interstate 270 south of Clayton Road.

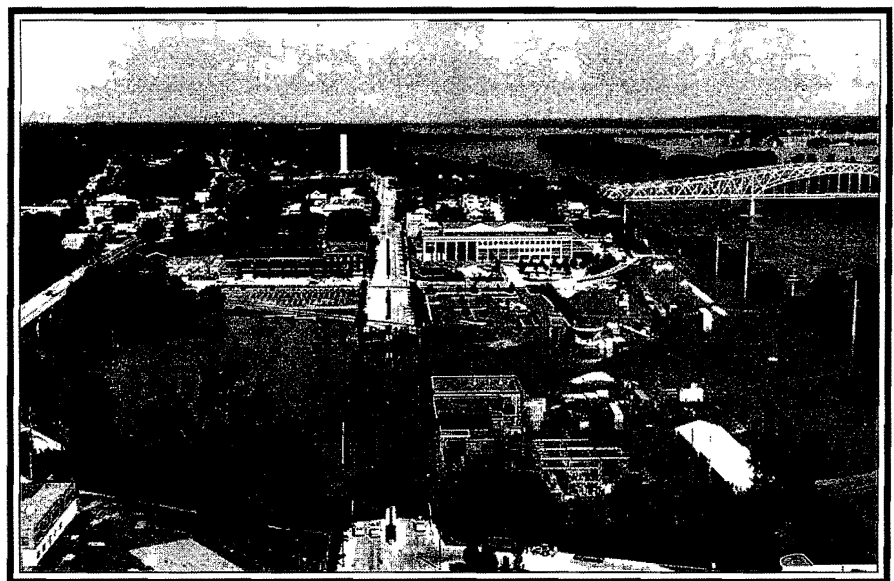
**Aug 2** - Mobile DACs begin operation.

- Passenger shuttle service across the Mississippi River at Quincy begins.

The Highway Department operates two boats each carrying 45 people begins making the one-hour round trip.

- Inmates of the Eastern Missouri Correctional Center donated emergency water supply (bottled water) and transported it to the Red Cross in Washington for distribution.

- Several cities in Platte County initiated water rationing and water boil orders.



July 30, 1993, from Dome of State Captiol looking west . Photo courtesy Mark Schreiber, Dept of Corrections.





**August 2, 1993, Ste. Genevieve. Photo courtesy Nick Decker, DNR**

- Ste. Genevieve has evacuated one-third of city because of interior levee break.

- Hardin Cemetery now estimates 972 caskets are unaccounted for - vaults found 20 miles away from cemetery.

- Flash fires at Phillips Pipeline at River Des Peres area, evacuations ordered.

- City of St. Charles starts evacuations because of levee break.

**Aug 3** - The Missouri River bridge at Jefferson City reopens. Traffic is restricted to one lane in each direction because of road damage to the north-bound lanes of Route 54.

- Rising water and strong currents cause a group of barges to break loose from moorings in St. Louis and smash into the Poplar Street Bridge causing minor damage to the bridge.

- Flooding has closed 13 airports in Missouri.

- Evacuation order in St. Charles City rescinded.

- Power outages in Pemiscot County led to looting, 30 arrests.

- Water Boil Order still in effect for Platte County.

**Aug 4** - The Union Pacific Railroad reopens its two main tracks through Jefferson City, allowing Amtrak to resume full service by Aug. 6.

- Approximately 12,000 people still displaced as a result of Phillips Pipeline situation.

- Blasting at Fort Charles Levee District in Illinois is putting pressure

on levee in Ste. Genevieve.

- Truman and Bagnell Dams are both releasing water.

- Hardin Cemetery recovery operations continue; Ray County fairgrounds used as makeshift morgue...137 bodies have been recovered.

**Aug 5** - Attorney General Nixon announces an investigation into disaster food stamp distribution problems in Kansas City area.

- Route 45 reopens north of Weston. The highway was closed for weeks due to high water.

- Route 24 near Brunswick is turned into a half mile of concrete chunks.

"What we're seeing coming up out of the water is much more severe than we expected," said Chief Engineer Wayne Muri.

- Levee blasting in Illinois breaks windows in Ste. Genevieve but levee is holding.

- Ferrell Gas in Kansas City explosions have been contained.

**Aug 6** - Nixon expands investigation into emergency disaster food stamp distribution to St. Louis area.

- Mississippi River crests in Ste. Genevieve, levee holds! But levee is

saturated and weak.

- Bois Brulle Levee in Perry County holding, has not overtopped.

- Mississippi River Bridge at Louisiana reopens to pedestrian traffic, still closed to vehicles.

- St. Louis County requests assistance in guarding Clayton Jail. The jail is overcrowded due to flooding in other communities.

**Aug 7** - Governor holds State Flood Summit in Jefferson City.

- The Corrections Department allows inmates and staff from various correctional centers to work in the flood clean up efforts for different State agencies and local communities. For example, all sandbags in the Jefferson City area were removed by inmate crews. Crews of inmates from different correctional centers would work



**Governor Carnahan tours flooding and holds informal press conference in the Eastern part of Missouri**

through March at various communities for their clean up projects.

- Natural gas main split near Highway 19 and 94 in Montgomery County. Cities of Hermann, Berger and New Haven without natural gas.

**Aug 8** - Floodwater cuts through Route 10 outside Hardin. The rushing water sweeps caskets and burial vaults from the town cemetery.

- Phillips Petroleum is pumping propane from tanks back into pipeline. Restoration of natural gas service to Hermann, Berger and New Haven estimated at 3 weeks.

- Mississippi River receding at Ste.

Genevieve.

**Aug 9** - Bus service begins between Perryville and Chester, Ill., via Cape Girardeau in order to help commuters who used the Chester Bridge. About 130 roads and bridges remain closed.

- Rosecrans Memorial Airport in St. Joseph suffers heavy casualties with the Missouri River. A pontoon boat is perched on a fence near the airport entrance.

- Mobile DACs are opened in Carrollton and Pike County.

**Aug 10** - Mobile DAC in Warren County; fixed DAC opened in St. Charles County.

- Storage at temporary morgue in Ray County becoming critical.

**Aug 11** - Attorney General Nixon filed to enact an emergency rule protecting Missourians who were victimized by price gouging. Prosecution comes under the Missouri Merchandising Practices Act.

- A six-mile stretch of Route 40 west of St. Louis is partially reopened.

- Route 54 Mississippi River bridge at Louisiana closed since July 1 reopens.

- Mobile DAC opens in Howard County.

- Ammonia tank leak in Crystal City reported.

- Damage Survey Reports (DSR) begin by COE.

**Aug 12** - City of Mosby in Clay County evacuated due to 8 inches of rain.

- City of Orrick in Ray County evacuating.

- Mobile DAC opens in Montgomery County.

**Aug 13** - Heavy rains throughout the State causing flash flooding. Mississippi River is rising again.

- Final fixed DAC (#33)

opens in St. Louis City.

- Mobile DAC opens in Saline

weeks.

**Aug 15** - West bound Route 40 in St. Louis reopens. There are about 100 roads and bridges still closed because of flooding.

- Mobile DACs open in Callaway and Cooper Counties.

- Water purification unit moved from St. Joseph to Ste. Genevieve.

**Aug 16** - Route 10 east of Hardin and Route 13 north of Lexington sustain heavy damage, citizens concerned about the safety of the Lexington bridge.

- One-half mile of Route 40 between Rocheport and Boonville remains closed since July 8. Howard County residents are taking a 30-mile detour to work in Boonville.

- Route 5 north of Boonville reopens.

- All Missouri and Mississippi River bridge inspections finished - damages appear to be minimal.

- About 90 roads and bridges remain closed.

- A large loader works all day to clear away sand from the entrance to Renz complex. The 31 foot levee that had protected the complex from Missouri River flooding is leveled. Only the third floor on the complex was above flood water.

- Mobile DAC opens in Platte and Osage Counties.

**Aug 17** - Attorney General Jay Nixon announces food stamp amnesty program in St. Louis area. The amnesty program in Kansas City recovered more than \$200,000 from illegally acquired disaster food stamps.

- SEMA requests Mississippi and Monroe Counties added to IA disaster declaration.

**Aug 18** - Mobile DACs open in Miller, Camden, Washington and Franklin



**Pumping and sandbagging operations.**  
Photo courtesy Mo National Guard

County.

- Excelsior Springs and Ste. Genevieve requesting water.

- Missouri receives the first installment of \$28.5 million for federal aid for highway repairs and cleanup from the Federal Highway Administration.

- About 150 roads and bridges remain closed.

- Route 40 at Chesterfield, just east of the Daniel Boone Bridge closes for a second time.

- Department of Elementary and Secondary Education held a conference for all school districts impacted by flooding in Columbia. The conference focused on available federal and State assistance.

**Aug 14** - Route 63 north of Jefferson City reopens after being closed for two

Counties.

- MHTD is pouring concrete to replace missing lane of Rte 54 north of Jefferson City.

**Aug 19** - Repair work begins on the Missouri River bridge at Glasgow.

- Routes 61 and 67 are closed in Jefferson County.

- Mobile DAC opens in Pulaski County.

**Aug 20** - Route 41 reopens to Route 24 in Carroll and Saline Counties.

- Damage to Route 13 between Lexington and Henrietta are worse than anticipated. A section was ripped away leaving a hole 8 feet deep and 40 to 60 feet wide.

- On Route 10 Hardin Cemetery washout hole is estimated to be 47 feet deep.

- Chester Bridge across the Mississippi River at McBride remains under 10-12 feet of water.

- Mobile DACs open in Chariton and Perry Counties.

- State Water Patrol provides a diving team and metal detector to assist in coffin recovery at Hardin Cemetery.

**Aug 21** - The northbound lane of Route 54 north of Jefferson City reopens. Highway Department crews worked 12-hour shifts, 24 hours a day for 18 days to reopen Route 54 in record time.

- Inmates and staff from the Missouri Eastern Correctional Center help with cleanup efforts in Defiance.

- COE asked to assist at Hardin Cemetery in dewatering graves.

**Aug 22** - Mobile DAC opens in Scott County.

**Aug 23** - The Amnesty Food Stamp Program in St. Louis ends, Attorney General Jay Nixon announced over \$69,000 in illegally obtained food stamps returned.

- Repairs start on the 159 Rulo Bridge - the river tore a 100 foot gap out of the highway which will remain closed for a total of two months.

- Missouri Funeral Home Directors Assn. moving Hardin Cemetery operations to Fairgrounds in Ray County.

**Aug 24** - Route 19 in southern Montgomery County has major damages after being under water for a month. Four sections of Route 94 have disappeared and in places holes in roadbed are as large as 250 feet long and 14 feet deep.

- Flash flooding in Vienna.

- Mobile DAC opens in Pemiscot County.

**Aug 25** - About 60 roads and bridges remain closed. Paving on I-635 in

**Aug 28** - SEMA ceases 24-hour operations.

- Last day for mobile DACs.

**Aug 31** - I-635 reopens connecting Riverside and Kansas City, Kansas. Contractors worked 15-hour shifts and a 24-hour schedule to complete the project in three weeks.

**September** - State shifts emphasis to recovery. A total of 102 Missouri counties and 3 cities (Kansas City, St. Louis and Jefferson City) have been approved for Individual Assistance. A total of 88 counties and the same 3 cities were approved for Public Assistance (roads, bridges, public



**Common sight greeting returning flood plain residents. The Clean up was just beginning. Photo courtesy Mark Schreiber, Dept of Corrections**

Platte County begins.

- Inmates assist in the clean up in North Jefferson City area.

- Eight counties have been requested to be added to disaster declaration for Public Assistance. The counties are: Cooper, Caldwell, Cass, Laclede, Monroe, Morgan, Pulaski and St. Clair.

**Aug 26** - Fixed DAC opens in Cape Girardeau.

**Aug 27** - Missouri National Guard shuts down 24-hour operations.

facilities, debris removal, protective measures, water control facilities, buildings and equipment, search and rescue expenses).

**Sept 3** - Transportation Secretary Frederico Pena visits Kansas City to present a check for more than \$600,000 in aid for repairing Missouri's flood damaged railroads. Missouri is the first State to receive a share of the \$21 million earmarked for railroad damage.

**Sept 8** - About 45 roads and bridges are closed.

**Sept 9** - Route 51 bridge at Chester reopens. The bus shuttle is discontinued.

**Sept 19** - Route 51 is closed again to car traffic at the Chester Bridge due to 2-feet of standing water in some places.

**Sept 22** - The Missouri and Mississippi Rivers and tributaries rise due to heavy rains once again closing 160 roads in addition to 20 that were already flooded.

**Sept 24** - Route 63 north of Jefferson City is closed as well as Routes 5 and 40 bridges in Boone County, and Route 47 bridge at Washington.

- Morse Mill on Big River is evacuating due to flooding.

- St. Louis County EOC back on 24-hour operations.

**Sept 25** - SEMA begins 24-hour operations due to flash flooding throughout southwest Missouri

- Lawrence and Taney Counties order evacuations.

- Portage Des Sioux cut off due to rising water.

- The Quincy Bayview Bridge reopens. The passenger shuttle service which operated since Aug 2 is discontinued.

**Sept 26** - Damage assessments from southwest Missouri indicate extensive damage throughout many areas.

- Red Cross sets up shelters in St. Louis for evacuees .

**Sept 27** - Flooding from heavy rains closes about 50 road in southwestern Missouri. About 180 roads in the state remain closed including Route 94 in St. Charles County, and Route 63 south of Jefferson City.

**Oct 1** - About 75 roads remain closed. A passenger shuttle between Chester and Perryville is in operation.

**Oct 4** - Missouri River bridges at Route 19 at Hermann and Route 47 at Washington reopen. Route 24 west of Brunswick reopens.

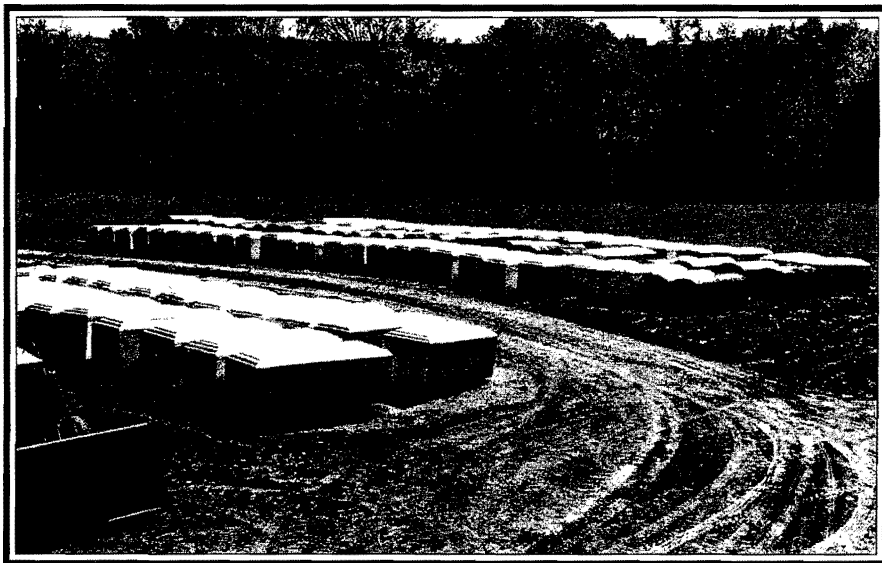
**Oct 5** - The Missouri River bridge at Boonville reopens. About 45 roads in the state remain closed.

**Oct 6** - The Missouri River bridge at Glasgow reopens. West bound

affected counties.

**Nov 19** - Governor requests Presidential Disaster Declaration.

**Dec 1** - President declares Individual



**Hardin Cemetery Rededication Ceremony.** Photo courtesy Mark Schreiber, Dept. of Corrections

travelers on Route 240 are detoured to a county road.

**Oct 8** - The Chester Bridge at Route 51 reopens, the shuttle is discontinued.

**Nov 1** - Attorney General Jay Nixon releases report on statewide disaster food stamp distribution program problems. The report was forwarded to prosecutors in the City of St. Louis, St. Louis and Jackson Counties.

**Nov 3** - Route 13 Lexington Bridge reopens. All major river crossings in the State are now open for the first time in four months.

**Nov 13 - 19** - Heavy rains, damaging winds and flash flooding hit 19 counties in Southeastern Missouri.

**Nov 15** - Governor Carnahan declares a State of Emergency.

- Seven deaths and wide-spread damage reported from storms.

**Nov 17-18** - Preliminary Damage Assessment Teams survey damages in

Assistance for 24 counties in Southeastern Missouri.

**Dec 4** - DACs open in four counties.

#### 1994

**Jan 13, 1994** - Presidential Declaration for Public Assistance for 14 counties in Southeastern Missouri.

**During the past year, 112/114 Missouri Counties have experienced the effects of flooding. The only two counties that have not been named for federal assistance are Cedar and Dunklin Counties.**

#### 1994

**April 10-11** - Heavy rains and flash flooding hit Missouri. There are two flooding deaths and one from a tornado in Barry County.

- SEOC partially activated.
- 30 rivers and major creeks in every county in Missouri are impacted.

Bagnall Dam is releasing water; St. Louis puts up the flood gates where

Missouri River is expected to crest at 39 feet (9 feet above flood stage).

- Evacuations ordered in Lincoln, Reynolds, Jefferson and St. Charles Counties.

- The Corps of Engineers is inspecting levees and staging 1.3 million sandbags.

- The Missouri Highway Patrol starts the "1-800" road closing information recording as numerous roads throughout the State are closed.

**Apr 13** - A fourth fatality reported. Evacuations are ordered in Jefferson County.

**Apr 14** - Governor Carnahan declared a State of Emergency.

- Evacuations ordered for Valley Park on Meramec River.

- Missouri Highway Department is monitoring I-44 and sandbagging.

- The Missouri River is cresting in Central Missouri above flood stage. The Meramec River crests between 29-40 feet along different towns where flood stage is normally 15-18 feet.

**Apr 15** - Mississippi River is rising from St. Louis to Caruthersville.

- Salvation Army and Red Cross have set up feeding and shelters.

- Preliminary Damage Assessments (FEMA, SEMA and SBA) are conducted in Lincoln, Franklin, St. Charles, St. Louis and Franklin Counties.

- Coast Guard is providing assistance in St. Charles and Valley Park.

- Corps of Engineers sets up mobile command post in Washington - brings in pumps, sandbags and technical assistance.

**Apr 18** - Governor Carnahan requests Presidential Declaration for five counties.

- five fatalities have been documented.

**Apr 21** - Presidential Declaration for Individual Assistance for 5 counties and the City of St. Louis.

**Apr 23** - DFO established in Earth

City, St. Louis County.

- SEMA staffing to DFO.

- SEOC continues operations in Jefferson City.

**Apr 24** - 3 DACs opened, two more will be opened at different locations as original DACs are closed.

**Apr 30** - All DACs closed in the five-county area. Six people have died in the flooding, one was killed by a tornado and another suffered a heart attack in a boat during the flooding.

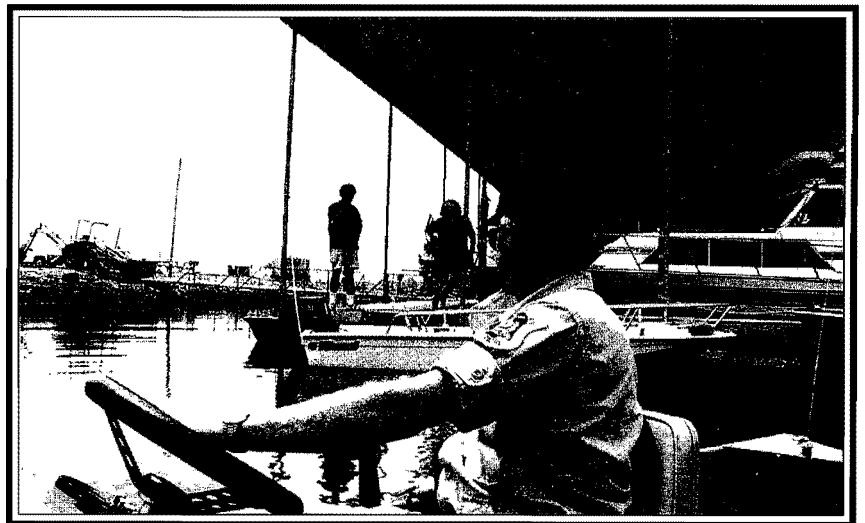
- Two Missouri counties are added to the declaration request.

**May 3** - Cole and Pemiscot Counties

were added to the original declaration for Individual Assistance.

**May 6** - DFO in Earth City officially closes.

**May 11** - Barry, Callaway, Clay, Morgan, Phelps, Pulaski, Reynolds, Shannon, Vernon and Washington Counties were added to the amended Presidential Declaration for Individual Assistance. A total of 16 counties and the City of St. Louis were declared for the April flooding - Missouri had four Presidential Declarations for flooding in one calendar year.



**Mo. Water Patrol PltLn Mike Porter checks on St. Charles County residents during the April '94 flooding. Photo courtesy Charles Bent, Mo Water Patrol**



# Governor's Flood Recovery Partnership

Governor Mel Carnahan convened the Flood Recovery Partnership at the request of charitable agencies to improve services to flood survivors. The Partnership was made up of representatives from church-affiliated organizations, not-for-profit disaster relief and charitable organizations, social policy advocacy groups, FEMA and several State agencies.

## Accomplishments

- \* Set up an information network to improve communications among public and private agencies and organized the Governor's Flood Recovery Resource Guide.

- \* Provided technical assistance to local unmet needs committees on good case management practices and knowledge of resources. Served as an ombudsman to solve problems for local communities.

- \* Provided direct assistance to flood survivors with approximately \$200,000 in donated funds made available to local unmet needs committees as a "gap grants" (small grants to help fill gaps between available resources and the flood victim's needs).

## Recommendations

- \* The Governor should appoint an on-going Disaster Recovery Partnership in order to have both public and private agencies contributing to the State's disaster recovery planning and policy setting.

- \* State agencies should develop new, flexible ways to find disaster survivors and expedite assistance to them, and not use routine State systems for delivery of disaster response and recovery assistance.

- \* A government/private agency coordinator should be created within SEMA. The partnership believes the

position should report directly to the SEMA Director. The coordinator's role and functions should include:

- 1) Facilitate meetings of the Disaster Recovery Partnership.

- 2) Serve as a liaison between the Partnership and voluntary organizations active in disaster.

would be responsible at the local level for assuring the coordination of government and private agencies providing disaster assistance in their local areas.

\* To improve outreach to disaster survivors recommendations include:

- 1) FEMA/SEMA operated Disaster



One of the many volunteer groups that pitched in to help with the flood fighting effort.

- 3) Oversee 8 SEMA area coordinators.

- 4) Coordinate assistance services provided by both the State and private agencies.

- \* SEMA should hire 8 regional coordinators with responsibility for overseeing and assisting local emergency disaster coordinators on local emergency disaster planning. These coordinators will coordinate government/private agencies providing disaster assistance.

- \* All local emergency disaster coordinators (as well as elected officials) should be required to be trained in disaster response and recovery. The disaster coordinators

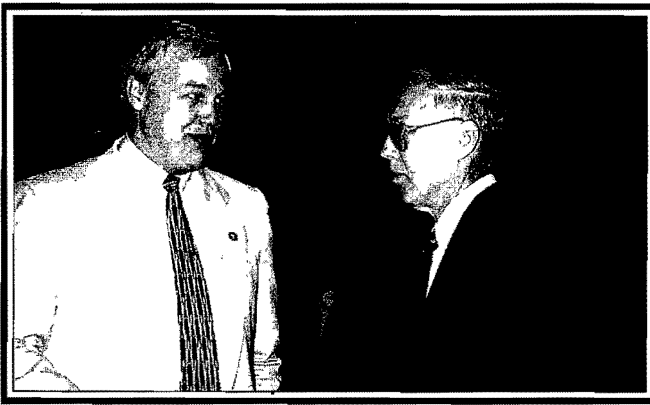
Application Centers be kept open longer in future disasters to reach more survivors.

- 2) More agencies (State and voluntary) be added to DACs to provide a one-stop shop for survivors.

- 3) Recovery/Service Centers be opened to provide one-stop-shops for services survivors need after a disaster

- 4) Local unmet needs committees be used to the greatest extent possible in reaching survivors and in providing an ongoing one-stop review of needs and resources.

- 5) Local outreach be required as part of every local emergency disaster plan.



Task Force member, State Senator Steve E. Ehlmann, chats with Task Force Chairman Jerry B. Uhlmann, SEMA Director. Photo courtesy Susie Stonner, SEMA



Task Force Members David Shorr, Director of DNR, State Representative Gary Wiggins and Louise Gardner, Jefferson City Mayor and Missouri Municipal League representative

## Governor's Task Force on Flood Plain Management

The Governor's Task Force on Flood Plain Management was composed of State agencies, State associations and private special interest groups. The Task Force made seven recommendations for Flood Plain Management to Governor Mel Carnahan following the four Presidential Flood Disasters between May 6, 1993 through April 17, 1994.

The recommendations are:

- \* Create a multi-jurisdictional body to recommend flood plain management policy and to empower and resource a designated State agency to implement flood plain management policy.

- \* State Government must lead by example. This discourages building future State structures in the flood plain. Existing State structures must meet the minimum National Flood Insurance Program (NFIP) standards.

- \* Assist people to move from the

flood plain. This addresses hazard mitigation efforts to move willing sellers out of the flood plain and likewise give farmers alternatives to not farming in the flood plain. The Missouri Community Buyout/Relocation Program is using a combination of Federal Hazard Mitigation (404) Funds, Community Development Block Grant Funds (CDBG) and Federal Demolition (406) Funds. For farmers, the Missouri Department of Conservation is participating in and committing funding to return river bottom farmland to natural resource benefits.

- \* Establish a State standard for new and existing structures in the flood plains. Critical structures such as nursing homes, hospitals and schools are located in flood plains. The State should take a pro-active role in flood plain management by establishing state-wide new construction standards in the flood plain. Additionally transportation improvements (both

new and major reconstruction) should comply with minimum NFIP standards.

- \* State should regulate hazardous material in the flood plains.

- \* Oversee levees. Farmers with levees should be encouraged to repair their levees to no higher than the Flood of '93 height. The State should adopt a permit program for construction and modification of levees. This permit system would give the State both an inventory and description of all existing levees in the State.

- \* Encourage reform of the NFIP. It was estimated that 1 in 10 homeowners in the flood plain purchased flood plain insurance. Likewise, one St. Louis County business purchased NFIP less than five days before his business was flooded.

## **5. EMERGENCY PREPAREDNESS**

Hopefully, the State of Missouri will never again be faced with a disaster the magnitude of the Great Flood of '93. Prudence tells us, however, that we should prepare ourselves for that possibility, just in case. To assist in that preparation, the State Emergency Management Agency solicited from State agencies lessons learned during the Great Flood of '93. Here is a sampling of those lessons learned and prepared by the different state agencies who actively worked the floods of 1993 and 1994.

# Local Government Flood Response

## The Response

Following the Spring, Summer and November flooding in 1993, the State Emergency Management Agency Operations and Training Branch conducted a state-wide survey for local governments' flood response and recovery operations. Almost 1350 surveys were mailed to Emergency Management Directors (EMD), County Commissioners, Mayors, County Sheriff Departments and Local Volunteer Agencies. The reports were presented at the 1994 Missouri Emergency Preparedness Assn, (MEPA)/SEMA Spring Conference over Easter just prior to the Spring 1994 flooding.

Over 90% of the county commissioners and 50% of the mayors responding have an Emergency Management Director. Almost half of the commissioners, mayors, EMDs and sheriffs polled have a special disaster team.

Were you prepared for the flood? 50% said yes. Was there a disaster plan? 90% of the EMD, 25% of the mayors and 60% of the county commissioners said yes. Of those jurisdictions with an emergency plan, 75% say the plans are reviewed annually and 60% said their plans were updated in 1993.

Approximately 85% of the EMDs and 80% of the county commissioners said disaster training helped them make decisions during the flooding. Almost 90% of the commissioners polled said they attended emergency management training classes. EMDs tended also to attend medical, fire and basic or business management classes in addition to emergency management classes. The vast majority of the respondents felt more training would continue to help them make future disaster decisions.

Almost 60% polled said they wanted

training in order to: 1) coordination of volunteers and goods; 2) resource and material management; 3) emergency management organizations; 4) state programs and 5) federal programs.

When asked to grade themselves on their flood response, 50% said their flood response was adequate. 55% said the resources and equipment were available for the flood response. 60% of the EMDs and the mayors felt they had enough personnel. Approximately 60% of the EMDs, mayors and commissioners said they had problems with damage assessments.

Local governments relied on State agencies for assistance. The agencies used the most for resources were: 1) SEMA; 2) Mo Highways & Transportation; 3) Mo State Highway Patrol; 4) Fire Safety; and 5) Social Services. Other agencies used included Water Patrol, Department of Health, Public Service Commission, Mo National Guard, Department of Natural Resources, Surplus Property, Department of Conservation and Department of Economic Development.

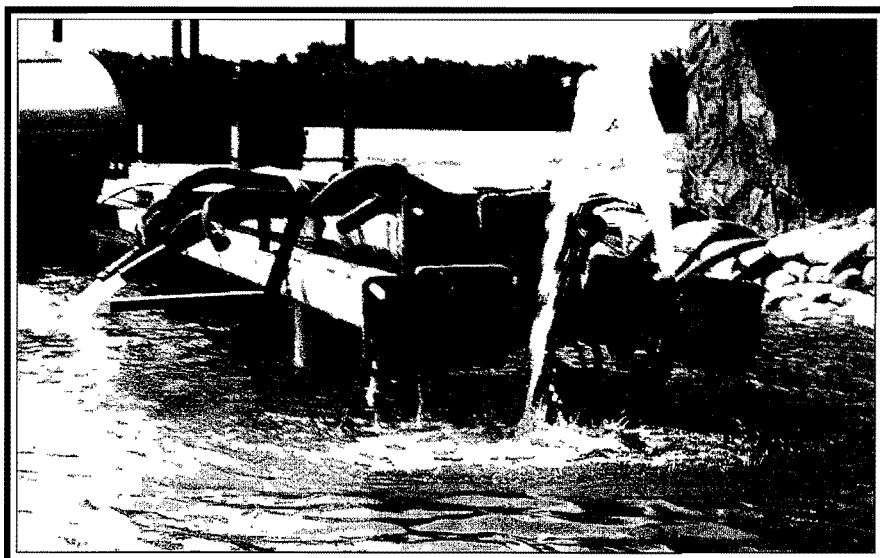
Local governments said they had a hard time contacting SEMA because the phones were busy - they just had to

keep trying until a line opened.

## The Recovery

In the area of Federal Assistance, 66% of the commissioners and mayors and 50% of the EMDs were not aware of the different types of federal assistance available in the flood recovery stages. However, of those who know about the program, 75% felt the FEMA programs available to local jurisdictions were adequate. The most frequent complaint from commissioners, mayors and EMDs was too slow getting money and assistance for private citizens. FEMA rotates their staff too often, the locals would be dealing with a certain individual on issues only to have to start the process again when a new person was assigned to those responsibilities.

About 60% of the EMDs surveyed said they have conducted a review of the plans based on the flood response. Approximately 90% of those who had conducted reviews were making or considering making changes in the emergency response plans and organization. To end on a happier note, 75% of those surveyed said they were better prepared for a future flood.



# Missouri Attorney General

## The Response and Recovery

In response to the Great Flood of '93, Attorney General Jay Nixon initiated rapid actions to protect Missouri citizens from fraudulent activities that frequently follow natural disasters.

As the flood waters entered Missouri, Nixon met with the Florida Attorney General to discuss the way Florida dealt with scam artists following Hurricane Andrew. He and his staff also met with the Attorneys General of Minnesota, Illinois and Iowa to share ideas about combating the problems the states were facing.

Missouri was luckier than any of these states in that it saw very few instances of attempted fraud against flood victims. Nixon said he believes the teamwork of Missouri citizens, businesses and law enforcement officials helped decrease dramatically the potential for fraud.

## JULY....

In mid July, Nixon launched a statewide campaign to alert consumers to the potential for fraud in the wake of the flood. He traveled throughout the State meeting with law enforcement officials in communities along the Missouri and Mississippi Rivers to coordinate efforts to protect flood victims from those who might seek to take advantage of them. He issued stern warnings that anyone who attempted to scam a flood victim would be prosecuted to the full extent of the law. He also made available brochures outlining advice and tips for flood victims.

By the end of the month, Nixon had filed to enact an emergency rule protecting Missourians who had been victimized by the flood from price gouging. The action allowed the State

to use the Merchandising Practices Act to prosecute those who inflated prices on products and services needed by flood victims. Those who violated the emergency regulations faced civil penalties of \$1,000 per violation, payment of restitution to defrauded consumers and payment of investigative and legal fees. Criminal violations were punishable by imprisonment of up to five years.

## AUGUST....

Nixon appointed a task force of attorneys and investigators from the Consumer Protection Division to fight food stamp fraud across the State. During the first week, he teamed up with local prosecutors to launch investigations into the operation of the disaster food stamp distribution programs in both Kansas City and St. Louis.

In the middle of the month, Nixon offered amnesty programs in both cities. He allowed people who improperly applied for and received food stamps intended for flood victims to return the stamps or pay for them. In Kansas City, the program recovered \$212,000 in food stamps and the discovery of employees who had illegally obtained food stamps. In the St. Louis area, the program recovered more than \$69,000. State workers who illegally obtained food stamps were not eligible for the St. Louis program.

Prosecution of others who cheated the system designed to help flood victims continues.

## OCTOBER....

The Attorney General's Office concluded its two-month review of the Disaster Food Stamp Distribution Program in the counties affected by flooding.

Nixon forwarded the evaluation

report to Governor Mel Carnahan and to prosecutors in Jackson and St. Louis Counties and the City of St. Louis. He also forwarded the report to Gary Stangler, Director of the Department of Social Services, the State agency responsible for the operation of the Disaster Food Stamp Distribution Program.

## Areas of Excellence

- \* Established a toll-free Consumer Protection Hotline and produced a booklet on Advice and Tips for Flood Victims.

- \* Enacted the Emergency Price Gouging Rule before the end of July. This allowed the State to prosecute violators under the Missouri Merchandising Practices Act.

- \* Food stamp investigations in Kansas City and St. Louis, plus a successful amnesty program that recouped illegally obtained food stamps.

- \* Close relationship with Attorneys General of Florida, Minnesota, Illinois and Iowa on common problems originating in disasters.



# The Department of Agriculture

The Missouri Department of Agriculture took quick and decisive action to help rural Missourians during the Great Flood of 1993. Because of the sizable number - 5 million acres - of Missouri's prime farmland is located along the State's rivers and tributaries, Missouri farmers were especially hard hit by the devastating floods. Flood-water claimed their crops, prevented them from planting and robbed the land of nutrients essential for crop production. In some areas, the flood left sand deposits so deep the land will never be farmed again, while in others it will take years of reconditioning to return the soil to its original fertility.

While much attention has focused on crop damage and levee repair, consideration also has to be given to the people and businesses directly and indirectly affected by the flood: agribusinesses such as grain elevators, barge owners and fertilizer and chemical suppliers; and local communities and businesses whose prosperity relies on the success of rural producers.

As disaster struck Missouri, the department began taking action to coordinate agricultural assistance efforts. This coordination helped to ensure unified and directed action on the part of agencies and organizations directly responsible for providing financial assistance to flood victims. It also helped clarify and communicate the roles of various U. S. Department of Agriculture programs to Missouri citizens who initially turned to the State department for help.

## Response and Recovery

Specifically, the Missouri Department of Agriculture took the following steps to address the needs of rural flood victims:

**\* Agricultural Flood Hotline** - the Department established a toll-free number to provide information on emergency services and assistance

available to farmers and rural residents. Employees answered telephone inquiries from 7 a.m. to 6 p.m. Monday through Friday. The hotline was effective from July 16 to October 15.

**\* Agricultural Emergency Task Force** - the Department brought together agricultural leaders from throughout the state to assess the needs and requests of affected areas and to discuss options for additional actions and or waivers that might address those needs.

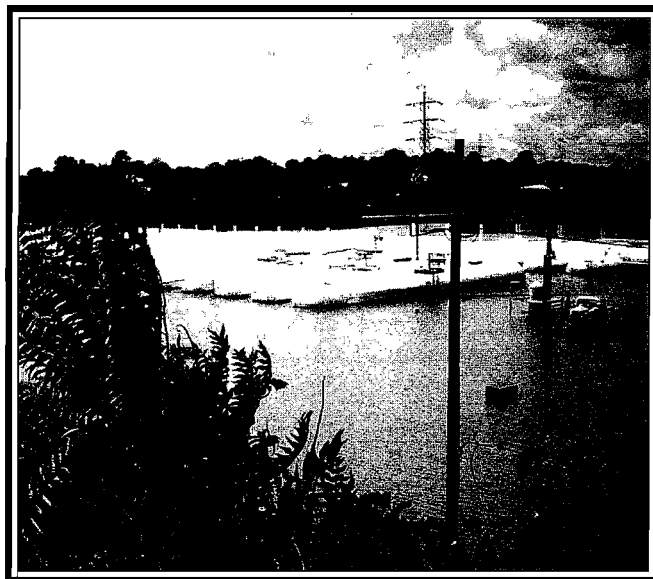
This group identified four priority areas of action. Those are listed along with the current status:

**\* Levee Reconstruction** - The flood destroyed or damaged 840 of the State's 1456 public and private levees. Currently almost all of the damaged levees show some repair progress, and most of the critical levees should be repaired by winter.

**\* Financial Assistance for Farms and Agribusinesses** -- The federal government allocated approximately \$190 million to assist Missouri producers affected by the floods through disaster payments and the Wetlands Reserve Program, Emergency Conservation Program and the Emergency Watershed Protection Program. In addition, the Department and the University of Missouri continue to offer financial consulting to flood-affected farmers through the

Missouri Farm Family Financial Advisory Program. Experienced farm financial consultants helped farmers determine their best options for recovery, future operations, and apply for federal aid.

**\* Farmland Restoration** - The Soil Conservation Service has estimated that approximately 455,000 acres or 60 percent of the cropland in the Missouri River flood plain was damaged by sand deposits and scouring. Despite this severe damage, the State's agricultural industry is rebounding and a good fall crop is expected for 1994. Only



Five of these 51 propane tanks broke loose during the flooding in the St. Louis area. Missouri Dept. of Agriculture's Division of Weights and Measures monitored the situation for safety. Photo by Ron Hooker, Weights and Measures

27,000 acres statewide were not planted in 1994 spring because of sand deposits, a number far below previous estimates. It is possible that most of the 27,000 acres idled this year will bear crops next year.

**\* Repairing roads, bridges and highways** -- Approximately 500-600 miles of State roads were closed due to the flood. Essentially all State roads have been restored and have long since returned to carrying traffic. Some contracts for highway improvements

are ongoing.

**\* Agriculture Disaster Declarations** - The Department worked with Gov. Mel Carnahan's office to secure federal disaster declarations for all Missouri counties to enable farmers to apply for various types of financial assistance.

**\* Dissemination of Information** - The Department compiled and issued pertinent information on emergency services and assistance programs to State and federal legislators, elected officials, commodity groups and county officials to use when responding to their constituents.

**\* Hay Hotline** - The Department concentrated efforts to market its hay hotline to put forage suppliers in contact with producers needing livestock feed.

**\* Dead Animal Disposal** - The Department's Animal Health Division established an emergency plan to handle large-scale animal death. Farmers were able to call 1-800-347-1178 for information on acceptable methods for disposing of dead animals. Fortunately, the State experienced minimum animal deaths due to the flood.

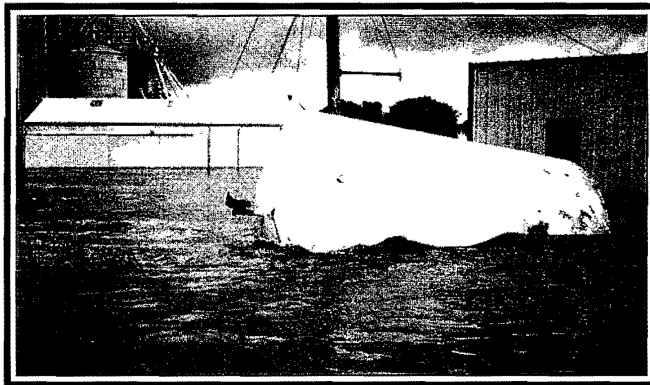
**\* Grain Inspection Services** - The Department requested and received an Executive Order to allow farmers to move grain stored on farms to storage elevators without requiring standard paperwork, such as warehouse storage receipts. The Department also provided prompt grading and identification of grain at reduced rates for quick storage or sale. In addition, the Department provided free grain testing for a limited time during the flood to help grain owners and operators determine whether their grain supplies had been infested by aflatoxin due to the drought or flooding. Aflatoxin is a

carcinogen produced by molds that may infest stressed grain.

**\* Weights and Measures Service** - The Department quickly mobilized field inspectors to inspect for fuel quality at locations that had gas pumps under water.

**\* Missouri Farm Family Financial Advisory Program** - Along with the University of Missouri, the Department in February established the Missouri Farm Family Financial Advisory Program to provide free financial counseling to farmers.

**\* Governor's Task Force on Flood Plain Management** - The Department



Premium unleaded gasoline leaks from tank uprooted in Cedar city by flooding. Photo by Steve Wadley, Weights and Measures.

staff served key roles on this task force that ultimately made recommendations for flood recovery and the immediate and long-term use of the State's flood plains.

**\* Emergency Aid Requests Information** - The Department director and deputy director also were instrumental in working through the Governor's office to supply key information to the President and Missouri's congressional delegation to form the basis for emergency aid requests.

## Areas of Excellence

Again, Agriculture believes the

Department's efforts to help Missouri's rural citizens during the flood were timely and effective overall. Especially critical were the open lines of communication Agriculture enjoyed with the Governor's office and our Congressional delegation and staff. As might be expected, problems were encountered at times, often fostering ideas for improvement.

## Lessons Learned

The following are Agriculture's recommendations for improving the Department's response when disaster strikes:

**\* Work with the U. S. Department of Agriculture's (USDA) Agricultural Stabilization and Conservation Service (ASCS) to streamline the procedure for making requests for federal aid. The process now is cumbersome, making it difficult to determine initial agriculture damage estimates to present to the Governor's office, Congressional delegation, the media, etc.**

**\* Along these same lines, the department believes it is critical to coordinate the damage assessment reports and figures among those affected USDA agencies: ASCS, Agricultural Statistics Service, and Soil Conservation Service. At the present time, each agency has different means of obtaining and measuring damage, including different qualitative and quantitative surveying measures. Therefore, damage figures vary from agency to agency causing confusion.**

**\* Work to improve communications with these agencies to ensure information filters down to the local level. Many times the Department referred producers to their local ASCS office for assistance, only to have them call back and say the local office had told them to contact the department.**

\* Establish more accurate and efficient ways to maintain and obtain information on levees. Information on existing levees was critically needed when making decisions whether or not to repair or replace them, and often the information was either outdated, inaccurate or nonexistent.

\* Attempt to increase staffing to answer any toll-free hotline set up as a result of a disaster. During the flood, existing staff members were either pulled from regular duties to perform this function or were asked to work extended hours.

## Recommendations

The following are some recommendations for improving the State's response during a crisis:

\* Establish a better mechanism for sharing information among federal and State agencies. A more coordinated effort would cut down on duplication, distribution of erroneous information and confusion for flood victims. For the most part, SEMA and other State and federal agencies did an outstand-

ing job of providing key information to the departments, establishing critical toll-free numbers and serving as a clearinghouse for information dissemination. Especially effective was the Governor's open house giving affected municipalities an opportunity to get answers from departments on a variety of flood related issues.

\* Create a central State group to accept relief donations and coordinate their distribution. Many agencies scrambled to determine where best to use donations of food, clothing, money and other commodities.

# Department of Conservation

## Response and Recovery

From our perspective, Conservation believes the coordination efforts provided by SEMA during the flood response and recovery were admirable and adequate overall. In our agency, most of the requests for aid were handled largely on the local level and Conservation found many of the requests we received through SEMA were already being addressed on the local level when we checked. This is as it should be, we believe. Conservation is proud that our employees are well known in the counties in which they reside and local authorities know how to contact them and also know they can rely on Conservation employees to provide assistance in times of need.

Emergency preparedness is pretty much inherent in the organizational structure of the Department of Conservation. Conservation has about 1450 salaried people at the forks and creeks statewide who are well known in their communities and most are equipped with four-wheel drive vehicles, mobile and/or portable radios that allow them to talk great distances through our repeater system. In some cases employees have access to boat and motor, police vehicle or heavy trucks and equipment and have the authority or can readily get it to act on behalf of the Department in case of emergency.

Our system worked well during the floods of 1993. It is what makes our Department valuable in an emergency. Conservation agents are mobile and flexible.

Our employees were quick to check with higher authority when necessary, but Conservation believes there was very little bureaucratic delay in our response efforts. Our field employees also knew how to get more help when it was needed by making appropriate calls within our agency.

## Areas of Excellence

Because Conservation is mobile and flexible, we were able to move construction crews into Reynolds and Shannon Counties overnight last November at the request of local county officials. The crews were able to restore roads that were totally wiped out by the November flooding. The roads were reopened in about two weeks thus freeing stranded residents.

As a part of the Recovery effort, the Department of Conservation created a program called "Partnerships for the Missouri River". This program focuses on buying large acres of flood damaged land not addressed by existing federal programs. As of July, Conservation had appropriated \$10 million for the program - the target goal is \$75 million. As of November 1994, this program has purchased 12,000 acres with the option to purchase and additional 6,000 acres on the Des Moines River. Conservation officials are working to purchase property on both the Missouri and Mississippi Rivers. The land, that the Partnership purchases, will be used as either wetlands or reforestation depending on the surrounding natural habitat.

## Lessons Learned

Regarding the initial response efforts, it seemed there was a terrific shortage of boats, life jackets and water pumps. Conservation put all the Department's supplies in service but could not meet all the requests. In future emergencies, there needs to be sources of such equipment that SEMA can draw upon in very short time frames.

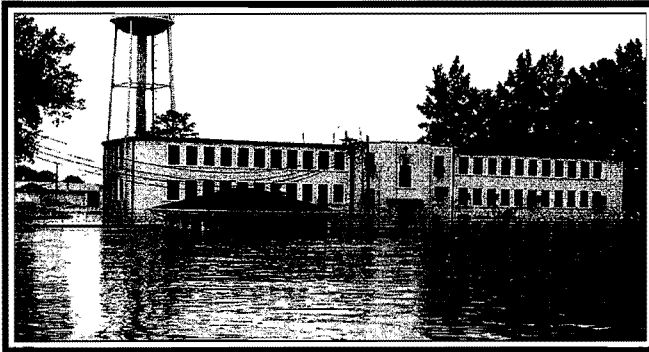
The early meetings sponsored by SEMA to explain the federal public assistance programs indeed were very helpful. However, from our viewpoint,

it seemed communication was somewhat lacking among personnel within SEMA and FEMA -- there was inconsistency in responses from these personnel. The response to and recovery from this unprecedented disaster was a huge effort by state government as well as the federal government which obviously caught many of us unprepared. It is understandable, therefore, that there was some confusion about the processes. The Department of Conservation is confident a repeat disaster would result in much improved organization of the response efforts for all of us. On the other hand, we would like to see SEMA and FEMA have precise procedures developed, practiced, honed and on the shelf ready for immediate implementation upon the occurrence of any future disaster.

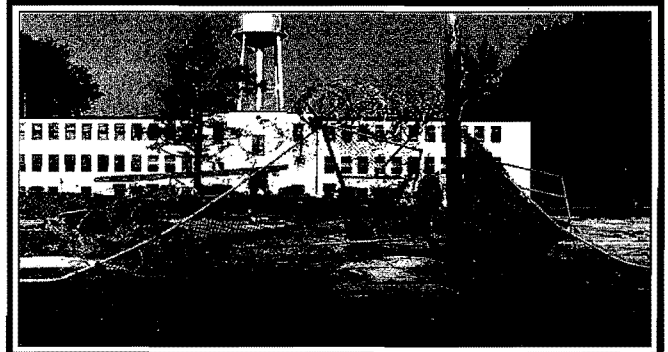
Conservation believes it would have been helpful if the precise details for applying for the federal assistance programs had been better understood and emphasized more clearly in the early stages of the response. The best time to keep records is as events are occurring. Conservation had a call recently from a sister agency in the State of Georgia, asking what advice we had for them as they were struggling with disastrous floods in their state. We were able to tell them the importance of getting all their staff dedicated to keeping records in the heat of the relief activity, reconstructing them later is extremely difficult if not impossible.

# Department of Corrections Division of Adult Institutions

## The Fight to Save Renz Farm



July 16, 1993 - Administration building Renz Prison. Photos courtesy Mark Schreiber, Dept. of Corrections



Damage to Renz - Fence was 9 foot high approximately 4,000 feet barbed wire fence destroyed

After the early spring flooding in April leading to the first Presidential Declaration for IA for eight eastern Missouri counties along the Mississippi River, officials at the Renz Correctional Facility were advised of the possibility for future flooding. This facility is effected when the river level reaches 29 feet. With their eyes on the river stages, Renz officials made evacuation preparations several times during the late spring and early summer.

Late June the weather conditions deteriorated and the river stages continued to rise. By July 2-3, 1993, the facility began evacuating inmates to both the Central Missouri Correctional Center (CMCC) in Jefferson City on Hwy 179 and the Chillicothe Correctional Center (CCC).

Corrections staff secured and removed as much property from the facility as possible or stored items on the second floor, above the flood's reach. Staff began ferrying items out of the facility as floodwater began reclaiming the land. Corrections however did purchase a large Jon boat, trailer and motor along with other safety items so staff members did not

have to use personal equipment.

By July 16, the Missouri River crested at 34.8 feet. Damage at Renz was visually evident. The staff's elation that "the worst is over" was quashed as northern Missouri record rains caused the Missouri to begin rising again. Property which had been secured on the second floor of Renz and had survived the 34.8 ft crest was in serious danger of new record high flooding.

A boat shuttle was formed by Corrections, Missouri Conservation Department and the Missouri State Water Patrol. In an eight hour period, thousands of dollars in property was moved by boat. By July 28, the Missouri raged through Renz complex with incredible force. The new crest of 38.6 feet would not come for two more days.

Property damage was extensive. The entire 9 ft security fence including 4,000 feet of razor security wire disappeared; the carpenter shop was damaged, storage tanks disappeared, the facility was a shambles with several feet of mud on the first floor plus several inches of mud on the

second floor. Because the water remained so long, the locks, security devices and equipment inside the facility rusted. Food service, inmate canteen and the medical unit were damaged. The compressor room collapsed. More surprising was the landscape around Renz, the 31 foot levee that protected Renz was flattened and a 15 acre, 15 foot deep lake appeared on the complex.

The Missouri Legislature on the advice of Department of Corrections will not reopen the Renz facility.

The Renz facility was not the only Corrections center to suffer from flooding. At the Algoa Center east of Jefferson City, inmates sandbagged day and night to keep the only road into the complex open. After the water flooded the road, staff had to walk along the railroad tracks to get to Algoa.

## The Response and Recovery

The Department of Corrections oversees 16 facilities; 12 of those



facilities had extensive involvement in either flood fighting, relief and clean up activities. As of January 18, 1994, Corrections staff logged in 4,340.75 hours supervising inmates during the 1993 floods. This is not a definitive hour figure, because Alcoa trustees are still working on clean up projects in and around Jefferson City into the fall of 1994.

Highlights of inmate assistance follows:

\* July 3 - Oct. 2 inmates and staff from the Farmington Correctional Center work extensively with sandbagging efforts to save the city of Ste. Genevieve from the Mississippi River. Later the inmates worked in Ste. Genevieve on cleanup efforts.

\* July 6 - July 27 inmates from the Western Missouri Correctional Center in Cameron sandbag in communities including: Oregon, Craig, Pattonsburg, Bigelow, Corning, St. Joseph and Holt County. They also assisted in the clean up effort in those communities.

\* July 7 - July 31 inmates from the Boonville Correctional Center begin sandbagging operations. By July 9, they have filled more than 150,000 sandbags. The inmates sandbagged along levees at Boone Femee Creek, Bartlett Creek, Hodell, Petersburg and Wooldridge. Inmates worked with the Cooper County Red Cross to move articles and food supplies to distribution points. These inmates worked extensively in Rocheport, New Franklin, Huntsdale and the Country Hills Subdivision in Columbia.

\* July 2 - July 28 inmates from the Central Missouri Correctional Center (Jefferson City on Hwy 179) participated in sandbagging efforts on Turkey Creek (North Jefferson City or old Cedar City) and also worked on sandbagging efforts to keep Hwy 179 open near Cole Junction and along Union Pacific Railroad tracks. As the flood waters receded, inmates worked on clean up in North Jefferson City at the site of the former Great Central Lumber Company.

\* July 5 - August 10 inmates from the St. Louis Community Release Center participated in sandbagging efforts in St. Charles County and on the River Des Peres. Additionally, inmates participated in Operation Food Search - food distribution and answered telephones for Channel 5's Volunteer Hot Line.

\* July 6 - October 29 inmates at the Western Missouri Correctional Center in Cameron assisted in both sandbagging and community clean up efforts in Oregon, Craig, Pattonsburg, Bigelow, Holt County, Corning, St. Joseph, Platte City, Rosecrans and worked with Highway crews to build a levee for I-29. Once the City of St. Joseph lost their water supply, this facility supplied the St. Joseph State Hospital with water and laundry services. The facility washed an average of 2700 pounds of clothing per day from July 27 - July 30.

\* July 7 - July 30 inmates at the Jefferson City Correctional Center worked on sandbagging efforts within the main facility. Inmates with staff worked on sandbagging efforts for the Office of Administration at the Data Processing Center and for the Department of Social Services. Additionally inmates and a staff worked on sandbagging efforts at the Jefferson City Garage.

\* July 13 - August 2 inmates from the Potosi Correctional Center joined inmates from the Farmington facility in the fight to save historic Ste. Genevieve.

\* July 15 - June 1994 inmates from the Alcoa Correctional Center (Jefferson City) worked more than 300 hours filling sandbags. They worked on sandbagging efforts at Rocheport and along Alcoa Road. After the river crested in Jefferson City, they were extensively involved in clean up efforts in both residential, commercial and public areas of Jefferson City. The inmates picked up all sandbags in Jefferson City. Additionally they were involved in clean up efforts at the

Department of Health Laboratory, Office of Administration garage, North Jefferson City (old Cedar City), the Jefferson City Airport, the city sewerage treatment plant and at the water treatment plant. Alcoa inmates assisted in clean up efforts in the communities of Taos, Osage City and North Jefferson City (old Cedar City). During the month of June, 20 inmates helped construct homes for Habitat for Humanity, which this year built the homes for last year's flood victims.

\* July 17 - Aug 2 inmates at the Moberly Correctional Center assisted with sandbagging efforts in July for the Highway Department. Sixty-one inmates bagged close to 100 tons of sand and placed it on pallets for the MDHT. Inmates also began laundry operations for the American Red Cross workers and donated clothing for flood relief.

\* July 24 - inmates at the Kansas City Community Release Center sandbagged in Parkville. The facility also provided sandbagging assistance to private businesses at the rate of \$5/hr for two days earlier the same week.

\* July 28 - Aug 2 inmates at the Missouri Eastern Correctional Center in Pacific manufactured sandbags for FEMA. In August, inmates helped move bottled water to the Red Cross center in Washington and clean up efforts in Defiance.

\* August 8 - Sept 30 inmates from the Chillicothe Correctional Center began trash and debris pick up efforts on Highway 36 West. They were also involved in the clean up effort in the Sugar Tree area.

## Areas of Excellence

Of the department's 16 facilities, a total of 12 had extensive involvement in either the flood prevention or flood relief activity. The Department of Corrections staff logged 4,340 hours supervising inmates in both the response and recovery stages. Hun-

dreds of inmates worked in various communities in both the response and recovery stages.

## Lessons Learned

- \* A state wide communications system is needed so State agencies can have improved interfacing capabilities.

- \* Expand training on the role of D-Mort. Should an earthquake occur, the State Mortuary Team will play a major role. Depending on the magnitude of the earthquake in different areas, temporary morgue sites in major population centers need to be identified.

- \* There needs to be expanded planning regarding transfer of county and local community inmates from jails to temporary holding facilities should a major disaster take place. The Department of Corrections can hold inmates for several days, however, our transporting capabilities may be very limited depending on the magnitude and scope of the disaster.

- \* Expand training regarding staging areas for disasters.

- \* Develop a detailed computer data base listing specific equipment, supplies, manpower etc. available from State agencies. List contact people so red tape can be reduced.

- \* Improve method of tracking requests for assistance and the agency to which the task is assigned. There was some confusion in this area during the flood.

- \* Develop an I.D. card system for major role players in emergency situations so accessibility to areas may be obtained. Advance issue of identification would be beneficial.

- \* Conduct tours for key agency staff of staging areas and other important geographic areas so if a major event takes place, at least some understanding of an area has been obtained in

advance.

- \* Develop comprehensive maps indicating emergency routes to be used in the event of an earthquake. It is understood routes available would depend on scope of incident. Maps should be distributed to agencies who would be involved in primary and support roles.

- \* Develop and maintain a ware-

cellular telephone.

- \* Consideration needs to be given to various injections to be given to search and rescue disaster personnel for a variety of serious diseases associated with disasters. One, there will be other disasters; and two, if anything can happen during a disaster, it will.



Missouri Dept. of Corrections inmates cleaning operations in North Jefferson City.  
Photo courtesy Mark Schreiber, Dept of Corrections

house in the Jefferson City area so basic emergency supplies can be stockpiled. These items could include cots, eating utensils, charcoal, blankets, flashlights, generators, boots, medical supplies, body bags, water containers, shovels, axes, pry bars, gloves, cleaning supplies, etc. The warehouse could be manned by several inmate workers from Algoa (if located at either Algoa or National Guard site). All items stored would be on a computer inventory. During the Flood of '93, it seemed the small items like those listed above were in short supply when needed. Items which we used a great deal included hand cleaner with a disinfectant, boots, gloves, life jackets and paper towels.

- \* One of the most valuable items used during the '93 flood was a

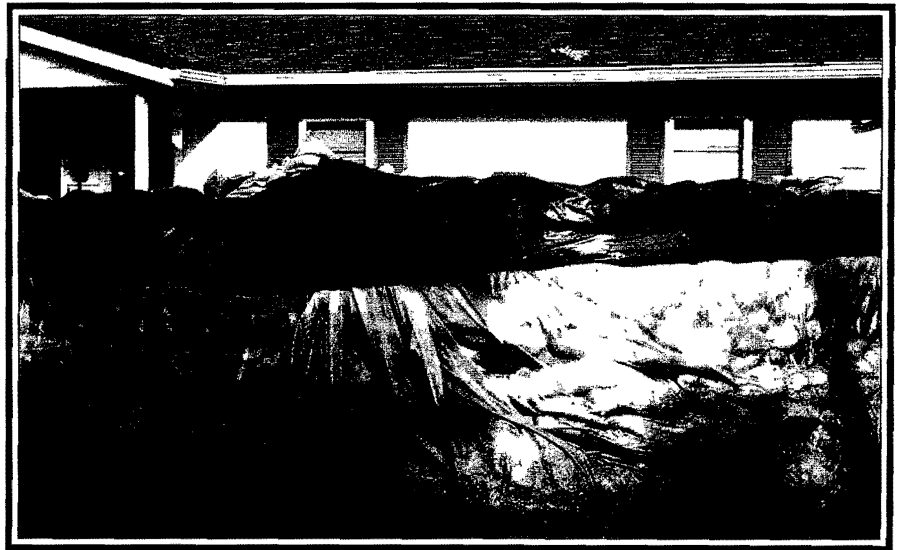
# Department of Economic Development Community Development Block Grant Program

## The Recovery

The Missouri Department of Economic Development (DED) received \$97 million in supplemental disaster appropriations (Public Laws 103-75 and 103-211) from the Department of Housing and Urban Development (HUD) specifically for recovery efforts in Missouri. The allocations, both in 1993 and 1994, were directed through the Community Development Block Grant (CDBG) program primarily to take advantage of the existing avenue available to provide funds directly to cities and counties suffering flood damage. Defined eligible activities, draw down procedures and previous experience with local governments, regional planning commissions, and private grant administrators provided CDBG management and staff a stepping stone to disaster recovery.

Early decisions by the State to designate stricter eligibility criteria assured CDBG its dollars would focus on the areas of greatest need. Coupled with HUD requirements regarding tracking of recipients to replacement housing, the culmination of regulations provided certainty that relocation would occur in, one, a decent, safe and sanitary dwelling; and two, the dwelling would be outside the flood plain.

The toll on Missourians living in the flood plain was disastrous. Though the rise and fall of water seemed slow moving, local emergency management directors, counties and State agencies were prepared to respond to the immediate needs caused by the flood. What Missouri was not prepared for was the continuation of the flooding creating an expanse of long term recovery. Since the breath and scope of the flooding was far reaching, Missourians will be in the recovery



**Photo courtesy Economic Development Department - CDBG & Buyout Program**

stages for years to come. The coordination and cooperation between State agencies surfaced quickly as the factor which would prove success or failure.

DED was actively involved in several advisory committees: The Governor's **Task Force on Floodplain Management** had DED serving as chair for the committee on acquisition and relocation. The Buyout/Relocation Review Board had DED as one of four decision makers regarding joint CDBG/FEMA buyout projects for the State. The Missouri Housing Development Commission (MHDC), a division of DED, set forth an active program to provide replacement housing and replacement housing financial assistance for flood victims throughout the State. Economic Development Administration (EDA) provided DED funding to coordinate federal assistance to counties through their local regional planning commissions (RPC), as well as providing technical assistance to those areas not included in the original RPC boundaries. Technical assistance included direction for proper funding sources and grant writing. Short term and long term comprehensive studies were created. The team

also performed a statewide study of the effects of the flooding on businesses. Department-wide, the response to the flood has been tremendous. The balance of this report will focus specifically on CDBG. Further information of DED activities is available through the Department.

## CDBG Projects with 1993 Funding

In 1993, the CDBG program received \$41 million in HUD funds for flood recovery. They funded 62 projects statewide in the areas of Acquisition/Relocation, Public Facilities and Economic Development.

## Acquisition & Relocation Projects

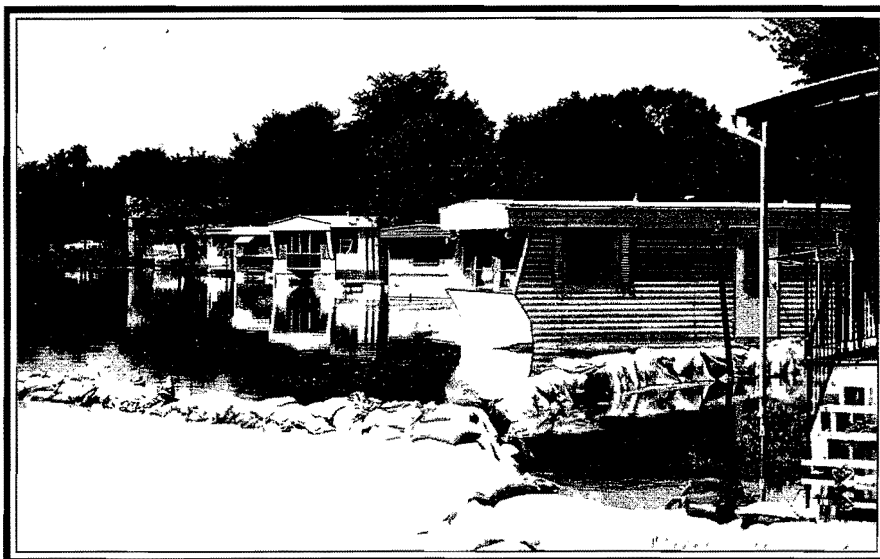
It is estimated that 216,000 Missouri households are located in designated flood plains. State Treasurer Bob Holden, who chaired the Governor's Committee on Homelessness, estimated that between 15-17,000 Missourians were left homeless by the

Summer and November Floods of '93 and the Spring flooding of 1994. While many of these Missourians are in temporary housing provided by the Federal Emergency Management Agency (FEMA) or living with

Assistance Demolition Funds - Section 406 was targeted to demolish structures in the buyout program. Thus each Missouri community would be getting the biggest impact for each dollar spent in the Buyout Program.

according to their own circumstances.

The communities in the Missouri Community Buyout program (using both CDBG and Sec. 404 funds) are: Alexandria, Arnold, Bellefontaine-Neighbors, Boone County, Buchanan County, Canton, Charrette Apartments in Marthasville, Clark County, Crystal City, Edgerton, Excelsior Springs, Fenton, Festus, Franklin County, Hannibal, Hartsburg, Hermann, Howard County, Jefferson City, Jefferson County, La Grange, Levasy, Lincoln County, Marion County, Maryville, Neosho, Pattonsburg, Perry County, Phelps County, Rhineland, St. Charles City, St. Charles County, St. Clair, St. Louis County, St. Mary, Ste. Genevieve, Tracy, Wakenda, Warren County, Washington, Waynesville, Winfield and Fredricktown.



St. Charles County -- Photo Courtesy Economic Development

relatives, these citizens still cannot get their lives back in order because of substantial damage to their homes.

Realizing that the biggest major investment most people have is their home, Governor Mel Carnahan decided to actively help Missourians move out of harm's way in the flood plain through hazard mitigation.

**Missouri Community Buyout/Relocation Program** was designed to help local governments receive Missouri CDBG funds and Federal Hazard Mitigation (Sec. 404) funds to identify, purchase and demolish structurally damaged primary residences from individuals who wanted to sell their homes and move out of the flood plain. Because of eligible funding criteria in each program, these programs were found to mesh together well to enable communities to address the different aspects of the complicated buy-out process. The program had \$60 million ( \$30 million in CDBG Funds and \$30 million in Sec 404 funds). Another federal program - Public

Fifty-seven projects were submitted to DED/FEMA for funding. An advisory committee composed of members of SEMA, DED, MHDC and a representative from the Governor's office reviewed the applications and made recommendations to the Governor. The Governor considered their recommendations and DED funded their portion before forwarding applications to FEMA for the hazard mitigation funding approval. Forty-three Missouri communities were approved for funding. Forty of those projects were funded with Summer flooding funds and 3 were funded with November flooding funds.

The program and communities targeted purchasing approximately 2427 individual primary residences, 1178 mobile home pads, 385 vacant lots and 4 apartment buildings from willing sellers who wanted to move out of the flood plain. This is a voluntary program; although residents were encouraged to move out of the flood plain, they could make the choice

**Missouri CDBG Buyout Projects** - The CDBG program committed an additional \$3.7 million in 1993 CDBG funds to two communities who did not qualify for the federal hazard mitigation funding. The Springfield and Bean Lake projects targeted the purchase of 225 primary residential properties.

**Public Facility and Levee Projects** - CDBG approved 17 projects for \$5.2 million. The \$3.1 million for public facility projects funded 12 projects. These projects were used for water, sewer and infrastructure hazard mitigation, replacement and/or moving public facilities outside the floodplain. Communities receiving CDBG funds for the Public Facility projects were: Kahoka, St. Mary, Ste. Genevieve County, Canton, Palmyra, Wayland, Columbia, Miller, New Franklin, Fayette, Chamois and Glasgow. One of the stipulations for funding a levee project was that the community would be rebuilt to Corps of Engineers (COE) standards. And the levee project had to join the COE levee maintenance program. CDBG approved 5 levee projects totaling \$2.1 million. The communities receiving the levee projects were: Chesterfield, Maryland Heights, Perry County, Buchanan

County and St. Charles County (DARST Bottoms Levee). Many early public facility projects included providing the necessary infrastructure for placement of FEMA temporary trailers.

**Economic Development Grants** - totaling almost \$1.8 million were awarded to four communities. The communities were: Hermann - to help Steven Manufacturing Supply relocate out of the flood plain; St. Charles - to help Synergy expand their business and relocate out of the flood plain; St. Charles County - to help Tetra Plastics improve access; and Ste. Genevieve County - to provide expanded water system.

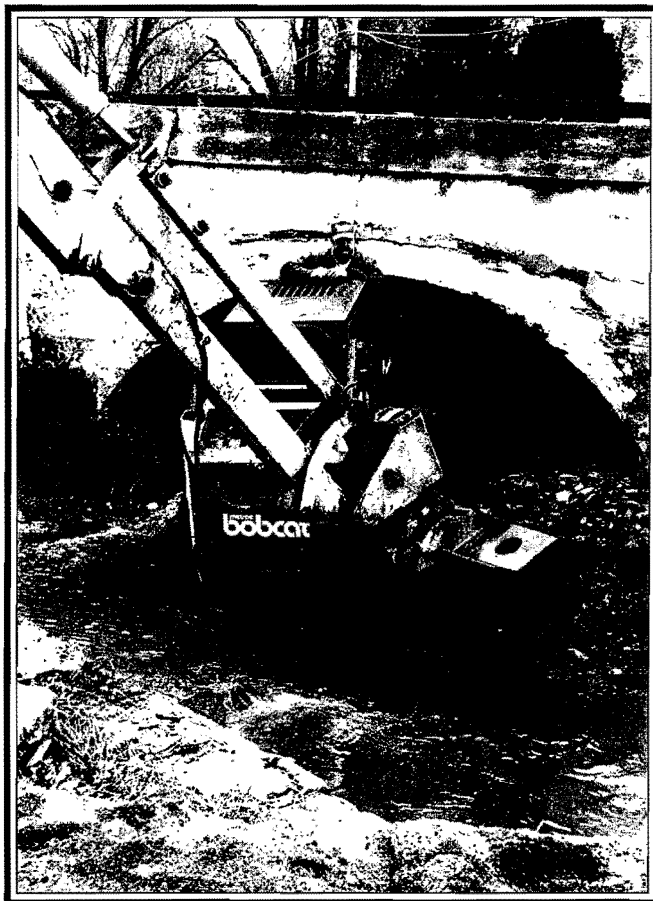
## CDBG Funds for 1994 Flood Recovery Projects

In 1994, the CDBG program received \$57 million from HUD for Disaster Recovery. As of October 7, 1994, CDBG program had already spent over \$15.2 million on Flood Recovery Projects. These projects include almost \$9 million for acquisition/relocation projects (the last 3 of 43 projects), over \$5.3 million for public facilities and \$880,000 for Economic Development Projects.

The balance of the \$57 million was committed by the end of October and breaks down as follows:

DED has allocated \$8 million to **Missouri Housing Development Commission** for housing assistance to citizens homeless because of flooding. This assistance will focus on replacement dwellings and any existing unmet needs for individuals who may still lack the resources to achieve suitable home ownership. This has been awarded to approximately 12 communities.

**Economic Development Projects** - will use \$4.1 million for 16 projects which will create almost 6200 jobs for Missourians. The projects that have received are under review or have received contingency approval are:



**Drainage Project for N. Lorge. Photo courtesy Economic Development CDBG**

Chariton's Maczuk creating 10 jobs; Canton's Coil creating 90 jobs; Cape Girardeau's SEMO Port creating 172 jobs; Jasper is working with three new businesses that will create 1,660 jobs; Franklin's Gencorp creating 330 jobs; Mississippi County Port Authority creating 85 jobs; St. Charles' O'Fallon Corp Center creating 100 jobs; Scott's Industrial Park creating 440 jobs; Franklin's ATAPCO/Hazel creating 600 jobs; Warrenton's Binkley Company creating 560 jobs; Perryville's Sabreliner Airport creating 185 jobs; Cape Girardeau's Mid-South Steele creating 25 jobs; Howard County's MOPAC creating 42 jobs;

Brunswick's Port Authority creating 10 jobs; Carthage Industrial Park creating 1600 jobs; and Lemay's Incubator creating 221 jobs.

**Commercial Buyouts** - will use \$8.7 million to help 13 buyout/relocation communities move 100 businesses out of the flood plain. The communities are Arnold, Carrollton, Festus, Hermann, Howard County, Jefferson City, Linn Creek, Marion County, Montgomery County, Portage Des Sioux, Rhineland, Park Hills and St. Mary.

**Residential Buyout** - 13 communities were not funded in the original round of buyouts. These 13 communities will buy approximately 440 primary residential homes located in the floodplain. These additional communities are: Agency, Arnold, Carrollton, Cooper County, Fenton, Lincoln County, Linn Creek, Morrison, Newburg, Park Hills, Portage Des Sioux, Rock Port, Willow Springs and Winfield.

**Public Facility** - funding will assist 42 projects totaling \$11.5 million. Breaking this figure down further, the 42 projects involve levee, sewer, water, bridge, road and bridge, public facilities and drainage projects.

- 8 Levee projects totaling \$2.7 million for Boone County, Chariton County, Cole County, Columbia, two levees in Howard County, Montgomery County and Ray County.

- 9 Sewer projects totaling \$2.4 million for Canton, Franklin County, Golden City, Lexington, Morrison, Orrick, Pacific, Perry and Washington.

- 11 Water projects totaling \$4.2 million for Cape Girardeau County, Carrollton, Clark County, Cooper County, Fairfax, Harding, Louisiana, Mercer County, Monroe County,



Whitewater and Winfield.

- 1 Bridge project totaling \$455,000 for Excelsior Springs.

- 5 Road and Bridge projects totaling \$189,000 for Gentry County, Festus, Pike County, Rocheport and Worth County.

- 2 additional flood mitigation for public facility projects totaling \$1.7 million for LaGrange and Nevada.

- 5 Drainage projects totaling \$834,000 for Greene County, Higbee, Shelbina, Willow Springs and Worthington.

## Areas of Excellence

- The approximately \$80 million for the buyout program will save Missouri taxpayers well over \$250 million in future flooding disaster claims.

- Ability to provide Missourians with low to moderate income housing outside the flood plain thus stopping the endless flooding/rebuilding cycle.

- The development of program policy to meet the priorities set by the Governor's Office.

- The ability to work with the Federal Hazard Mitigation Funds (Sec. 404) to move Missourians out of the flood plains on a permanent basis

- The proof that Congressional choice to channel funds through HUD's CDBG program was a successful strategy for long term disaster recovery.

- The joint effort on the part of CDBG and SEMA to utilize '93 federal disaster funds to track and move over 3500 families out of the flood plains. The CDBG's use of '94 disaster funds to continue the residential and a new commercial relocation program.

- The ability to award disaster funding quickly to the communities through the already existing CDBG program.

- The ability to maintain the

integrity of HUD through required standards of replacement housing.

- The ability of State and Federal agencies to work together to accomplish a unified goal in times of a disaster.

- The ability of the delivery system to rally around the communities to see them through the coordination of agency paperwork.

- The ability to use an existing proven system to conduct an emergency program.

## Lessons Learned

- Paperwork Problems - The Buyout Program community application should have had one set of paperwork for the community to fill out rather than a set for the Sec 404 funds and a set for the CDBG funds.

- Earlier Staff Participation - The Advisory Board made community funding decisions. However with earlier staff participation by all agencies, staff could have helped the local communities write the original funding applications.

- Gain a working knowledge of HUD and FEMA goals and program guidelines.

- Early and frequent FEMA HUD policy decision changes in the initial buyout program made it difficult for communities to write acceptable

buyout applications. It would have helped if the guidelines were set earlier in the process and not changed. The flood victims had to wait too long for answers.

- Governor's Office Set Priorities --



**Commercial Buyout Program - North Jefferson City. Photo courtesy Mark Schreiber, Dept of Corrections**

it was easier to make program funding decisions because relocation was his number one priority. While elevation and rehabilitation were allowable disaster projects according to the federal guidelines, these projects did not meet the Governor's stated priorities.

- Levee money -- the decision was made to use CDBG funds to help rebuild levees. However the approved projects had to be repaired to COE standards and the repaired levees had to join the COE levee system. CDBG funds provided the 20% local to federal match for the approved levee projects.

# Department of Elementary and Secondary Education

## The Recovery

During the Flood of '93, the Missouri Department of Elementary and Secondary Education provided information to local education agencies concerning available flood recovery assistance. A meeting was held in Columbia, Mo., on August 13, 1993, for all school districts impacted by the flood.

The purpose of the meeting was to inform local school districts of the assistance available from both the Federal and State levels. Representatives of the U. S. Department of Education, Impact Aid Disaster Assistance Branch and FEMA were present to explain the application process. The Missouri Departments of Health, Mental Health, Social Services and Public Safety (SEMA) were also on the program outlining available assistance.

Another important role the Department of Elementary and Secondary Education played was as a point of contact from other groups, both within the United States and foreign countries, that wanted to help local school districts with recovery efforts. Hundreds of calls were received by the



Department and referred to local school districts that needed recovery assistance.

The Department of Elementary and Secondary Education in partnership with the Department of Mental Health provided training to school personnel

on the emotional impact of the flood on children. School personnel were trained to identify children with emotional problems which were flood related. School districts also learned how and where to get help for the children.

# Department of Health

The Department of Health is responsible for statewide public health protection. The Missouri Department of Health's (MDOH) initial response to the flood emergency was to operate as normal. During this phase of operation the MDOH assigned responsibility to the Director of the Division of Local Health Services to coordinate department response. As the flood crisis worsened, the business as usual approach was abandoned. On July 26, 1993, MDOH activated its Emergency Response Plan and opened its Department Situation Room (DSR) to direct department emergency activities. MDOH assigned a liaison officer to the federal Disaster Field Office (DFO) in Earth City (St. Louis) to coordinate between the DSR and DFO. Department emergency management operated on a 10 hour day, seven days a week with an after hours duty officer during the duration of the emergency. During the operational hours, MDOH maintained telephone contact with the State Emergency Operations Center (SEOC). A liaison officer from the Federal Centers for Disease Control (CDC) was attached to the DSR.

## The Response

On July 14, 1993, MDOH submitted through the State Emergency Management Agency (SEMA) to the US Department of Health and Human Service (HHS) a request under the federal Stafford Act for assistance with health and medical assessment and surveillance. Staff from HHS Office of Emergency Preparedness (OEP) were dispatched to assist MDOH assess the extent of the emergency situation and to provide advice on how Missouri should proceed in addressing the real and potential public health threats posed by the flood.

Resulting from the OEP assessment, MDOH sent a request through SEMA on July 23 asking for additional federal assistance. Areas in need of assistance included disease and injury surveil-

lance; tetanus vaccine; environmental sanitation; food, water, sewerage; laboratory services; vector control; public information; primary care providers and support equipment vehicles, communications and test kits. Telephone conferences between the DSR and DFO clarified the requested assistance resulting in an approval for direct assistance from HHS for \$750,000. This grant was for community sanitation, disease and injury surveillance, vaccine and general support expenses. On July 28, MDOH made a separate request through SEMA for vector control - which resulted in a \$200,000 direct assistance award.

Activities accomplished during the disaster response were:

- \* **Community Sanitation** - Evaluated and assessed sanitation of food service, retail food stores, food processors and manufacturers and food warehouses affected by flood. Embargoes and condemned flood damaged food. Evaluated condition of private water and sewage systems and collected well water samples for analysis. Provided health and safety inspections at temporary feeding and shelter sites. Assisted local health department sanitarians by providing consultation and technical support. Developed technical bulletins for flood response and coordinated with allied states and federal agencies. Directed activities of 27 assigned federal sanitarians who were supporting the response.

- \* **Disease and Injury Surveillance** - Established contact with hospitals and shelters in affected areas and developed a reporting system for these facilities to notify the MDOH of flood related injuries and illnesses. CDC personnel assisted with records review in selected hospitals and random sampling of all hospitals to collect additional data. Contact was made with coroners and medical examiners to collect information about flood

related deaths.

- \* **Vector Control** - Through cooperation with CDC five entomology surveillance teams worked seven day weeks from August 4 through October. The teams set 180 traps, 5 nights per week collecting 1759 pools of mosquitoes numbering some 123,863 individual mosquitoes to be checked for St. Louis Encephalitis (SLE). Specimens were analyzed by CDC at Fort Collins, Colorado and at the virology laboratory of Southeast Missouri. Surveys conducted in eight other flood states produced similar results. In addition to mosquito surveillance, MDOH conducted surveillance for SLE, Western Equine, California Equine and LaCross Encephalitis in both equine and human populations. These surveillances did not detect any arboviral activity in Missouri. During flood response activities in selected communities, limited nuisance mosquito control spraying was provided. This was only in situations where mosquitoes were hampering response workers' ability to work.

## The Recovery

To conduct disaster recovery activities MDOH applied for funds under the federal emergency flood supplemental appropriation enacted by Congress to assist the mid-west flood states. MDOH submitted two applications. The first was for \$1,064,354 for environmental health/epidemiology. The second was for \$304,000 for primary care.

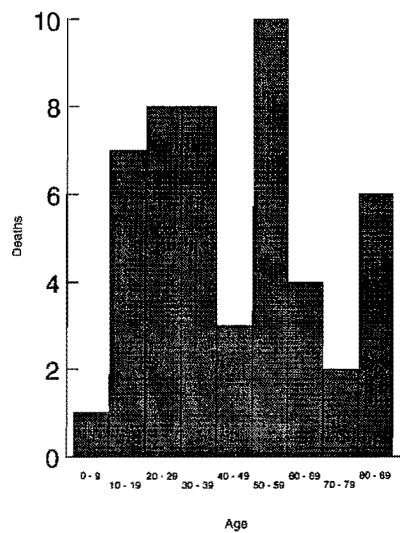
- \* **Environmental Health/Epidemiology Recovery Efforts** - The grant of \$1,064,354 received from Centers For Disease Control included four components: a) vector control; b) disease and injury epidemiology; c) private water and sewage sanitation; and, d) hazardous substances emergency event surveillance.

# Flood Mortality Statistics

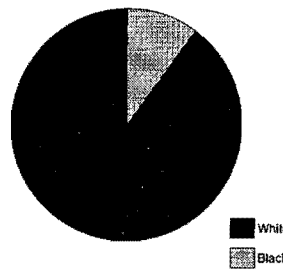
## Summer/Fall 1993

MISSOURI DEPARTMENT OF  
**HEALTH**

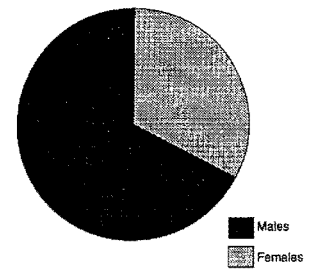
### Age



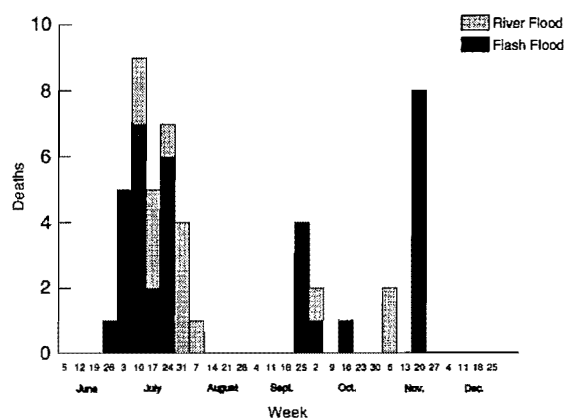
### Race



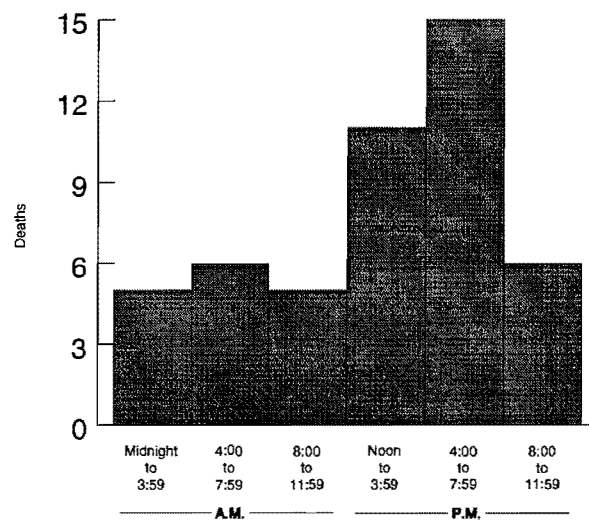
### Sex



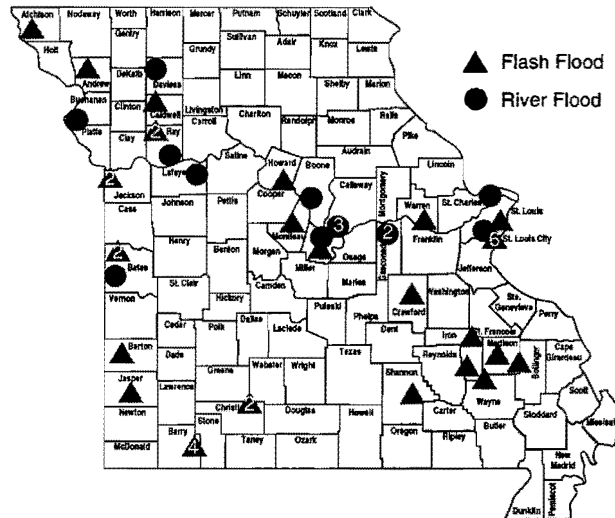
### Week of Death



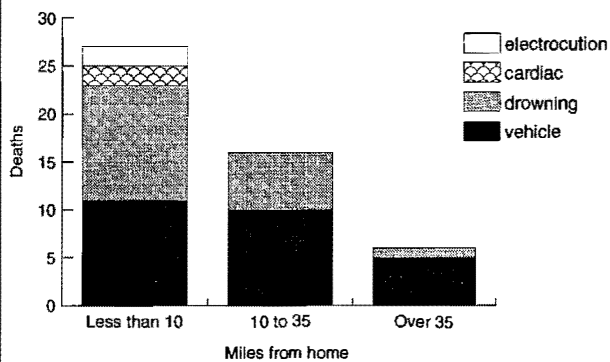
### Hour of Death



## Flood-Related Mortality Missouri 1993



### Distance from Home at Time of Death



### Causes of Death by Type of Flood

	River Flood	Flash Flood	Total
Motor Vehicle	6 (23 %)	20 (77%)	26 (53%)
Drowning	5 (26%)	14 (74%)	19 (39%)
Electrocution	1 (50%)	1 (50%)	2 (4%)
Cardiac	2 (100%)	0	2 (4%)
All Causes	14 (29%)	35 (71%)	49 (100%)

April 1994

Prepared by: MISSOURI DEPARTMENT OF  
**HEALTH**

The **Vector Control** component was to provide surveillance for vector bearing and nuisance mosquitoes. Primary objective was to ensure early detection of Western Equine and St. Louis Encephalitis. Historic epidemiologic data indicated possibility for increased occurrence of the diseases during the two years following the flood event. MDOH contracted the surveillance program activities to various institutions in the State. Serological analysis was contracted to the Veterinary Medical Diagnostic Laboratory at the University of Missouri - Columbia. Entomology personnel were obtained from Southeast Missouri State University. The surveillance of wild birds was contracted to the US Department of Agriculture, Wildlife Damage Control Unit. Five sentinel chicken flocks were strategically placed in Clay, Vernon, Pettis, Marion and Jefferson Counties. Plans called for maintaining the surveillance programs from June through October 1994. Data would be analyzed weekly. As of September 1, no virus activity has been detected.

For the **Disease and Injury Epidemiology** component the objective was to investigate the cause of any flood related diseases, injuries or deaths and determine interventions for future events to avoid similar problems. Of the nine mid-western flood states, Missouri experienced the greatest number of flood related deaths. From the Summer flooding there were 49 deaths recorded. The deaths directly attributed to either river flooding or flash flooding were divided into four categories: 26 motor vehicle deaths; 19 drowning; 2 electrocution and 2 cardiac deaths. (see chart) During the April 1994 flooding there were seven deaths: 5 were attributed to motor vehicles in flash flood situations; 1 to a tornado during severe weather and 1 cardiac to over exertion.

**Private Water and Sewage Sanitation** component had the objective of assuring residents in rural and semi-rural areas affected by the flood that their drinking water and on-site sewage disposal systems were o.k. The plan called for a door-to-door survey of 5,000 homes to assess their sanitation needs. This project proved to be more difficult than anticipated and was less than successful. Only 315 personal surveys were completed and 378 mail-in surveys were received; 2291 vacant homes were located; and 96 water samples were taken with a 67% satisfactory result. The emphasis on this component changed mid-course on review with CDC. All the midwest flood states and CDC along with the Environmental Protection Agency determined a need for a comprehensive well water prevalence study to determine the actual current condition of well water in the region. Results of this survey have not been released.

The **Hazardous Substance Surveillance** component was intended to identify the distribution of hazardous substances events, describe the resulting deaths or illnesses if any, identify risk factors and develop strategies for future events. The primary activity of this component has involved an investigation of allergic reactions to molds caused by the flood. Data collection and analysis is still proceeding with work being performed under contract to Washington University School of Medicine.

**Primary Care Recovery Efforts** - The \$304,000 grant received from the Health Resource and Services Administration (HRSA) was to provide primary and preventive health care to persons affected by the flood, especially those who were economically dislocated. As of August 30, 1994, five contracts with local health agencies were in place to provide

service in areas affected by the Flood of '93 and not in the service area of an existing public primary care provider.

## Areas of Excellence

The working relationship between CDC, the DFO and the Department's DSR were excellent. Having a CDC liaison in Jefferson City at the Department's situation room and a State health department liaison at the DFO in St. Louis facilitated communications. The coordination of combined federal and State public health assets affected an appropriate level of support to local governments, voluntary agencies and the public to react to all actual and potential public health problems during the emergency and recovery stages.

## Problems and Issues

The supplemental emergency funding provided resources for only one year of operation of the Vector Control Program. Historical records indicate the vector problem can easily be a two year problem with the second year after the event as the most serious. The Missouri Department of Health is concerned about adequate vector control resources for the spring and summer of 1995.

The application process for the emergency supplemental funding was a cumbersome process through CDC and HRSA. The requirements for the applications were not appropriate to an emergency situation.

Dealing with FEMA on public assistance claims has been tedious. As of August 1994, MDOH has recovered less than 10% of its claim. Three different FEMA reviewers have been involved in the process and each one requiring the claim to be redone and resubmitted.



# Department of Higher Education

## University Extension

### University of Missouri, Columbia

The county extension agent concept, which is the model for the USDA's Cooperative Extension Service, was pioneered by the University of Missouri at the turn of the century. The University Extension is an unbiased source of information for Missouri citizens. The flood response meetings they held will help University Extension to continue to help Missouri communities and citizens mitigate, prepare, respond and recover from future disasters.

## Response

Shortly after the beginning of the flood emergency, University Extension appointed a task force of experts at the University of Missouri - Columbia. The experts are linked with extension's network of specialist headquartered in county offices. Together they provided information and technical assistance to people and institutions affected by the flood.

To assure efficient and effective service to flood victims, University Extension coordinated activities with other agencies including ASCS, FEMA, SEMA, Red Cross and SCS. In many cases, extension specialists directed flood victims to appropriate agencies. In northwest Missouri, for example, field specialists working with Congresswoman Pat Danner published an 800 number that provided information on relief services through FEMA.

## Campus Activities

The flood response team activated at UMC was headed by David Baker, extension safety and health specialist. It included specialists and officials in the following disciplines: health education, information, meteorology, agriculture (food and natural resources extension), environmental design, fire

and rescue training, rural sociology, food and nutrition, video conference, director of extension technology and computer services, the associate vice provost and the director of the Small Business Development Center at UMC.

The team, working with other campus faculty, prepared and distributed information on how to deal with crop damage, alternative crops; flooded wells and sanitary waste facilities; submerged machinery; stress; insurance coverage; mosquitoes; flooded homes and gardens; salvaging food, furniture and household appliances; disposing of animal carcasses; returning to damaged buildings and returning electrical circuits to service.

The team gathered and distributed information that proved helpful in other flooded states including Illinois, Iowa and Michigan.

All the information was distributed externally through several channels.

- \* An interactive electronic bulletin board that links campus experts with

field faculty and other users with the proper computer modems.

- \* Weekly telephone conferences, linking campus and field specialists to determine information needs and coordinate activities with other relief agencies.

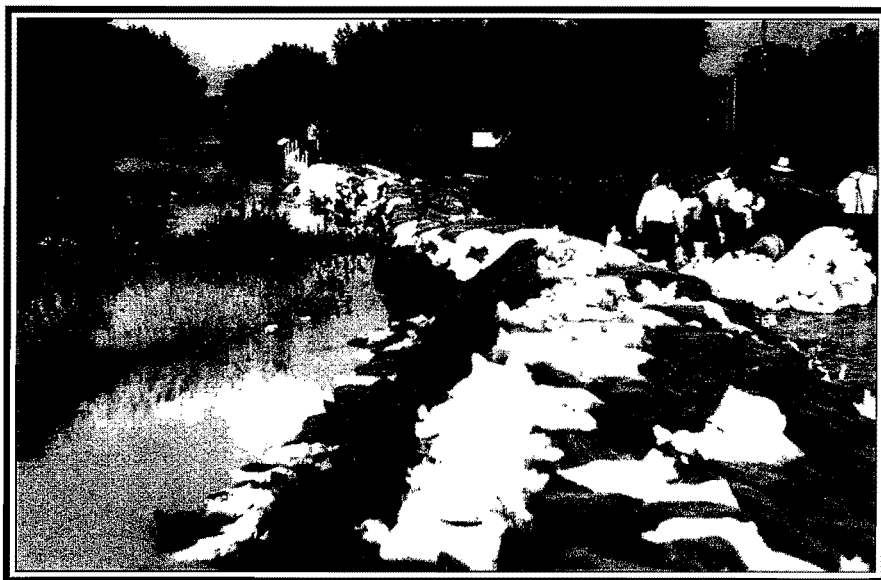
- \* Ag Electronic Bulletin Board

- \* Electronic mail

- \* Newspaper stories, television news clips and radio news stories

- \* The network of field specialists in the counties.

The UMC Office of Extension and Agricultural Information produced 16 news releases, two media advisories, 15 radio stories and two television news features. Distribution was through MediaLink, a direct electronic bulletin board; 800 numbers; and field specialists. The information staff also handled calls from media for expert information on locally specific topics.



## County Activities

Field specialists answered hundred of questions, requests for information and technical assistance. Extension field specialists also used their traditional close relationship with the mass media - particularly newspapers and radio - providing guidance in dealing with farm, home and business problems left by the flood.

Information provided by field specialists appeared in major metropolitan newspapers as well as smaller community newspapers. Radio was used by many field specialists to provide information and assistance. Field specialists also provided helpful information through television interviews in St. Joseph and Jefferson City.

Other activities included:

- \* St. Charles County staff provided packets of recovery information directly to flood victims at Disaster Application Center (DAC) sites as they applied for assistance.

- \* In Northwest Missouri, packets of flood recovery materials were distributed by the extension to people in flood shelters.

- \* Some field specialists took vacation to help with sandbagging and rescue efforts.

- \* In Nodaway County, University Extension arranged and co-sponsored with the Missouri Highway and Transportation Department of Andrew and Nodaway Counties, a seminar focusing on repairing flood damaged rural roads.

- \* In Northeast Missouri, field specialists helped community government leaders select and apply for local relief funds.

- \* University Extension's electronic mail system was used to communicate the needs of 4-H club members in flood-affected counties to other 4-Hers

eager to provide help.

Field specialists reported working with farmers, individuals, businesses, county and local governments affected by the flood. In addition to the topics provided from the UMC, each county had a supply of disaster recovery information packets.

The University Extension service rushed flood relief information materials to county specialists in Southeastern Missouri after the devastating November 1993 floods.

## The Recovery

University Extension will continue to provide long-term advice, education and technical assistance to flood victims, dealing with problems as they are anticipated or arise during the flood recovery process.

The University Extension set up meetings between the U.S. Army Corps of Engineers, SCS, ASCS and Missouri River area farmers who suffered flood damage. Data on the economic impact and projects regarding the Missouri River levee issues were provided to Congress.

Working teams have been established from the Columbia campus that are focusing on land reclamation and farm financial management. This group proposes to work closely with SCS leaders to consider what needs to be done in the land focus areas including restoration of sand-inundated land. Additionally civil engineers from Rolla are providing advice to communities, counties and individuals regarding flood-damaged infrastructure.

## Problem Areas

Extension Field Specialists surveyed the Central Missouri Flood Focus group in Howard, Osage, Callaway and Chariton Counties. The following are problems that the local communities identified during the flood response

stage.

- \* Needed to be a "Central Command Post" to direct sandbagging, evacuation traffic control. This would identify the leaders or "key contact person" and eliminate 1) volunteers standing around not knowing what to do; and 2) let the National Guard know who was the key person during their specific mission in the community.

- \* Walkie-talkies or cellular telephones for communications.

- \* Financial assistance from FEMA took too long. The locals felt there was a delay in the response time from federal and State agencies in meeting their local needs. If people needed to relocate immediately, it took too long (anywhere from three weeks to three months) for the funding or temporary housing to come through.

- \* Lack of coordination and communication between volunteer agencies such as the Salvation Army, Red Cross and Church affiliated groups. In some communities, these agencies were competing with each other while in other communities there was no volunteer agency presence. "It wasn't that their assistance wasn't needed, it was the timing and coordination of their assistance that was the problem."

- \* County residents need to know 1) who their County Emergency Management Director is and 2) be informed about the county's emergency operations plan.

- \* Have printed comprehensive resource lists (who does what) to hand out to disaster victims at DACs. This would help the victims know who and where to apply for assistance getting their lives back in order.

## Lessons Learned

The University Extension Service needs to have closer ties to the emergency management system at the federal, state, county and local levels.

# Missouri Department of Highways and Transportation

## The Response and The Recovery

"The Mississippi River went above flood stage April 1 in Hannibal, as numerous county and city streets began to close. 'I expect it will be awhile before these will open,' said one local official. And a while it was...."

**...Water Over the Road, published by the Missouri Department of Highway and Transportation (MHTD), Office of Public Affairs.**

Between July 1, when Governor Mel Carnahan declared a State of Emergency for flooded counties until November 3 when Route 13 at Lexington Bridge over the Missouri River reopened, MHTD crews worked around the clock. When this bridge reopened, it was the first time in four months that all major river crossings in the State were opened.

## Missouri Highway Flood Facts

\* A maximum of 250 State highway routes were closed at the same time during the flood.

\* Approximately 960 individual flood sites caused road closures on the State highway system.

\* All counties in Missouri reported at least one road closure on the State highway system due to the flood with the exception of Camden and Christian Counties.

\* 480 Missouri lettered routes on the State highway system in 112 counties experienced road closures due to the floods.

\* At one time during the flood the Missouri River could only be crossed in Kansas City, near Rocheport on I-70

and in St. Louis (22 major bridges were closed at the same time).

of 406,855 hours flood fighting and repairing damaged roads and bridges. For flood fighting MHTD employees



Highway 54 toward Jefferson City. Photo courtesy Mo. Highways & Transportation

\* The Missouri River could not be crossed north of Kansas City

\* The Missouri River could not be crossed north of St. Louis

\* Three interstates were closed (I-29 north of St. Joseph, I-635 near Kansas City, and I-44 South of St. Louis)

\* Damage assessment forms in the amount of \$49,953,864 have been approved for reimbursement by the Federal Highway Administration.

\* Contracts totaling \$34,390,509, including \$2,653,259 for Disadvantaged Business Enterprises, have been awarded to repair flood damaged roads and bridges in the State highway system.

\* MHTD employees worked a total

worked 140,055 regular hours and 82,694 overtime hours for a total of 222,749 hours. For repairing damaged roads and Bridges MHTD employees worked 145,193 regular hours and 38,913 overtime hours for a total of 184,106 hours.

Seven MHTD Districts were involved in the flood fighting and road and bridge repair work. The total expenses were \$70,805,917.40. The districts and cost breakdowns are: District 1, Northwest \$22,576,375.68; District 2, North central \$19,093,478.45; District 3, Northeast \$4,496,093.92; District 4, Kansas City, \$11,560,531.45; District 5, Central \$11,560,531.45; District 6, St. Louis \$1,613,115.90; and District 10, Southeast \$848,407; and the remainder of the State \$1,564,059.

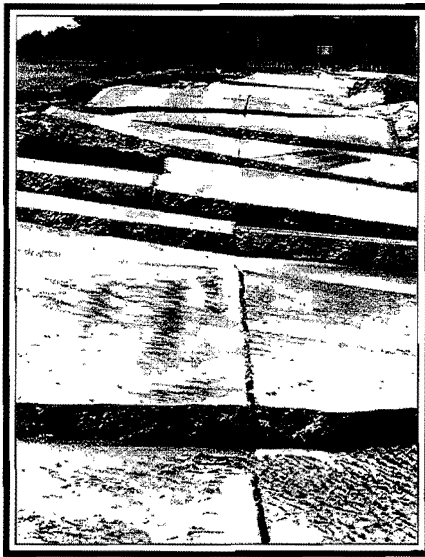


Photo courtesy Mo. Highways & Transportation

## 1993 Flood Damage Estimated Cost to State Highway System As of May 3, 1994

### A. Flood Damage Repair

1. 14 miles of major breakup @\$1.5 m/mile totals \$21 million
2. 100 miles of surface damage @\$50,000/mile totals \$5 million (100% state funds)
3. 200 miles of detour resurfacing \$26,000/mile totals \$5.2 million (100% state funds)
4. 86.7 miles of damage as haul roads for repairs @\$50,000/mile totals \$4.3 million
5. 250 miles of ditch repairs @\$2,000/mile totals \$0.5 million
6. 50,000 cubic yards of bridge abutment fill @ \$26/cy totals \$1.3 million
7. Stream trash removal & roadway cleanup, 7 districts, 1/2 labor force totals \$10.5 million
8. Flood control costs (O.T. etc) totals \$6.6 million
9. Signage cost totals \$0.1 million
10. Slides, lump sum totals \$10 million
11. Recovery for active contracts totals \$4.4 million
12. Ferry boat operation from LaGrange to Quincy totals \$0.3

million

13. Bus service at Perryville totals \$0.1 million

## Total Estimated Flood Control and Repair costs \$69.3 million

B. Other Damage - financed 100% by State funds

1. 110 miles of road damaged as regular repairs contractor haul roads due to soft subgrade totals \$3.3 million

C. Future Flood Proofing - financed 80% by federal and 20% State funds or 100% State funds

1. 172 miles raising roadways above flood stage totals \$507.5 million.

As for the major bridge closings, the MHTD estimated that it cost Missouri motorists \$106.3 million in detours and increased miles trying to find an open bridge. The major bridges closed were: Rte 136 in Brownville closed for 15 days; Rte 159 in Big Lake closed for 62 days; Rte 36 in St. Joseph closed for 11 days; I-635 in Riverside closed for 51 days; Rte 291 in Courtney closed for 11 days; Rte 13 in Lexington closed for 116 days; Rte 65 in Waverly closed for 91 days; Rte 41 in Miami closed for 40 days; Rte 240 in Glasgow closed for 149 days; Rte 87 in Boonville closed for 37 days; Rte 54 (both east and west bound) in north Jefferson City closed for 5 days; Rte 19 in Hermann closed for 40 days; Rte 47 in Washington closed for 48 days; Rte 40 (both east and west bound) in Weldon Springs closed for 14 days; Rte 115 in Old St. Charles closed for 14 days; Rte 61 in Clark County to Keokuk, IA, closed for 45 days; Rte 24 (both east and west bound) in Marion County to West Quincy closed for 73 days; Rte 36 in Hannibal closed for 82 days; Rte 54 in Louisiana closed for 37 days; Rte 67 in St. Charles County at the Lewis-Missouri River closed for 7 days; Rte 67 in St. Charles County at the Clark-Mississippi River closed for 7 days; Rte 51 in Chester closed for 70 days.

It must be noted one MHTD employee, Jon Wade of St. Louis, was killed on August 1, 1993 after repairing a flashing message board alerting motorists of detours caused by rising flood waters.

## Areas of Excellence

MHTD employees, like all other State employees, gave 110% during the flood response and recovery stages. Highlights of areas of excellence gleamed from the MHTD's book **Water Over the Road** include:

\* MHTD employees coordinated recovery efforts during the flood with the National Guard and with service organizations like the Red Cross, the Salvation Army. They also worked closely with law enforcement, public



Sandbagging efforts. Photo courtesy Mo Highways and Transportation

safety and other State, county and local agencies and volunteer groups.

\* Barriers and sandbags were erected and taken down by hand - a very laborious process, but one in which there were few accidents and fewer complaints by workers.

\* MHTD employees were able to turn possible tragedies into positives for three Missouri citizens. Three employees rescued two motorists and

while a fourth employee rescued a stranded youth from flash flooding incidents.

\* The battle to save Hwy 54 North and keep Jefferson City open was hampered when a ruptured propane tank broke loose from its moorings and threaten the bridge. The employees were evacuated for several hours which halted sandbagging efforts thus allowing the river to overtop the road. Once the water receded, crews worked 12-hour shifts to reopen both Highways 54 and 63 to motorists. Rte 54 was reopened on August 3 while Rte 63 was reopened on August 14.

\* District 3 bought and operated two 45-passenger pontoon boats to ferry citizens to their homes and jobs between Hannibal and Quincy, Ill.

\* District 10 employees used a 10-wheel dump truck to shuttle landlocked families to and from their homes across flooded roads.

\* A maintenance supervisor with Ronald MacDonald's help brought "Happy Meals" and drinks to 80 inmates from Western Missouri Correctional Center in Cameron who were involved in sandbagging efforts keeping floodwater off I-29 in Platte County.

## Lessons Learned

\* Although it was not surprising, it was definitely a relief that virtually no structural damage occurred to bridges. Only one bridge was washed out (a minor bridge in Northwest Missouri

which was replaced in fairly short order). This indicated State highway bridges will perform adequately should a flood of equal magnitude occur again.

\* It was important to act quickly repairing roads. FHWA, which funds emergency repair of federal-aid State, city and county roads requires matching local funds for repair work taking place over 180 days after a disaster occurs. This is less of a problem for "normal" disasters such as tornadoes or even earlier floods. But the flood of

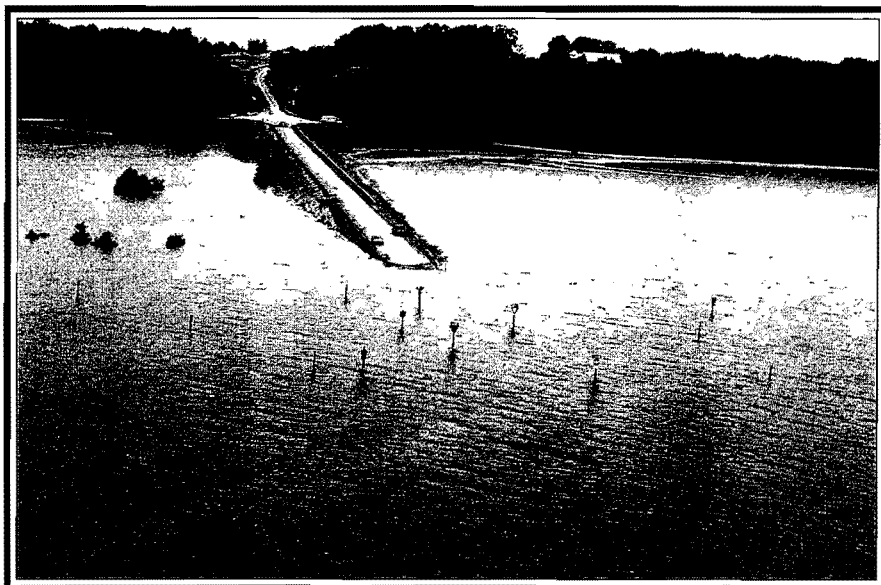


Photo courtesy MH&TD

'93 was an unusual animal - it began in the spring and went through the fall. With winter approaching, survey work on I-57 and Big Lake Bayou in Mississippi County could not be completed until the spring of 1994. The 180 day period is not really realistic for a long term disaster such as the Flood of '93. It resulted in excessive matching costs.

\* River stage forecasts were made by several different organizations - NWS, COE, USGS. It was confusing to get an accurate forecast from the appropriate organization. Later, with flooding surpassing estimates and levees collapsing, the forecasting became even less accurate.

\* River stages and forecasts were given in feet, with no elevation data. It would have been very helpful if the stages and forecasts could have been also given in USGS elevations. MHTD could have compared flood elevations with highway and bridge elevations to predict road closures.

\* MHTD personnel and equipment were, in general, adequate for responding to the emergency although considerable overtime was needed. It was necessary in many areas to shift resources from one area to another.

\* Roadways with hydraulic fills (pumped fill from river bottoms) seemed more sensitive to failure after being overtopped (Rte 54 in Jefferson City for example) than conventional fills, although conventional fills also failed (Rte 19 north of Hermann).

\* Changeable message signs proved helpful in re-routing traffic at major intersections especially as conditions changed.

\* As the magnitude of flood became apparent, various districts were empowered to make flood-fighting decisions as conditions in the areas dictated. Although similar situations were not handled the same way in each district.

\* Trash disposal became a headache. In some locations, areas of the highway right of way not actually occupied with pavement became public dumps. Literally hundred of tandem-axle dump truck loads of trash and building debris were removed from one such area in St. Charles County...some of the debris originated in Illinois.

# Missouri Department of Mental Health

For the Department of Mental Health (DMH) a new course was charted. The existing disaster plan proved inappropriate as it focused on a potential earthquake along the New Madrid fault in Southeast Missouri. The Department's historical focus was ensuring safety and shelter of clients housed in DMH facilities. Providing extensive mental health outreach to the public was not a component of the plan. Fortunately, the flood proved a "slow" disaster and allowed for information gathering, coordination and mobilization of Community Mental Health Center (CMHC) workers through the Department's existing disaster provider network.

Since this was DMH's first experience with extensive disaster programming and FEMA and CMHC disaster services, it was a challenge to convince many of the providers to deliver services without a committed funding stream.

However, Missouri was fortunate to have a strong commitment to flood service delivery from both Missouri Governor Mel Carnahan and Keith Schafer, Ed.D. Director Missouri Department of Mental Health.

## The Response and The Recovery

The DMH's flood outreach effort is known as Project Rainbow. Dr. Karl Wilson of the Four County Mental Health Center in St. Charles submitted the first Immediate Service Grant (ISG) application for Crisis Counseling on July 22, 1993. Two extension applications for the grant were filed on September 7 and on November 5 respectively. Both extensions were funded.

In August, Susan Flanigan Gold was

hired to manage the Rainbow Project full time (Dr. Wilson served as the interim disaster coordinator working with DMH division directors as well as CMHCs). Ms. Flanigan became the one central source of coordination thus allowing existing DMH managers working both the disaster and their full-time responsibilities to return to their ongoing demands. Dr. Wilson, who devised the outreach component of Project Rainbow continued to serve as a consultant to ensure accurate and effective psychological response to Missourians. Ms. Flanigan assembled and coordinated the Regular Services Grant (RSG), briefed DMH managers daily on flood activities, worked on staffing Disaster Application Centers (DACs) in flooded communities.

Project Rainbow mobilized a crisis counseling program through CMHC provider network and DMH mobilized their local crisis counselors through Missouri. While the centers provide outreach services to their established areas, they also established multi-county teams who sympathetically and creatively reached out to those whose lives were curtailed by the flood. DMH workers staffed DACs, Red Cross and Salvation Army shelters, sandbagged, worked at feeding sites and side-by-side with assorted emergency responders throughout the State.

Additional DMH response included using Division of Mental Retardation and Developmental Disabilities Regional Center professional staff as outreach workers at the DACs; development of a list of Department carpenters, electricians and plumbers available for assistance with rebuilding efforts; statewide media contact via news releases and telephone contact to request publication and airing of information about crisis counseling services toll-free number.

The Department published and distributed brochures and business cards with information about accessing flood related counseling services; operated 2 crisis nursery child care sites in St. Louis staffed by DMH professional staff to provide stress relief for displaced families and organized activities for children that provided an opportunity for dealing with their flood related fears; opened space at the DMH residential centers to house people homeless because of flooding (specifically at Marshall and Bellefontaine); regional staff provided storage space at rehabilitation centers and transported community goods from flood areas to safe sites.

The Flood Management Team acted as a liaison between federal and state government and mental health agencies. A Flood Resources Board, composed of flood program coordinators from each CMHC meets monthly to share information and feedback on the outreach efforts.

A Flood Recovery Partnership was created by Governor Carnahan and facilitated by Dr. Schafer. This group brought together representatives from the State and federal government and private flood service organizations to better coordinate services for flood survivors.

Children, the elderly and farmers were targeted as at risk groups by DMH. Activities for these targeted groups include:

- \* Unmet needs committees assisting flood survivors in obtaining services and resources.

- \* Children - gaining access to the school system for crisis counseling. Literature and follow-up visits were distributed to





**Due to the hard work and effectiveness with assisting Missouri's flood-affected citizens, Gov. Carnahan declared Sept 15, 1994 Crisis Counselor Appreciation Day. The Department of Mental Health employed 200 counselors statewide at the height of the flood response. Photo courtesy Department of Mental Health.**

school counselors about problems children might have. Once school districts identified the need for crisis counseling, counselors were allowed to work with school age children.

\* After school respite for both children and parents was established in some areas. Crisis counselors coordinated activities for children until 5 p.m. thus allowing time for counselors to screen children plus allowing time for parents to work on after flood home repairs.

\* Elderly concerns. Counselors started to visit areas where elders congregate to discuss and identify services. Counselors were often able to "break the ice" by accompanying Meals on Wheels volunteers on their home visits.

One problem area was identified in the Division of Aging's response to needs of their clients. While Department of Social Services focused on health care issues, outreach issues hit snags with the Area Agencies on Aging (AAA) because AAA had three

disaster coordinators in less than 9 months. Because of "turf" issues, DMH is providing crisis counseling services with age appropriate counselors at CMHCs.

\* Trained many "natural gatekeepers" such as religious leaders, physicians, law enforcement officials, bartenders, beauticians and barbers about flood survivors reactions to the disaster and when to refer the survivors for counseling.

\* Farmers and rural dwellers, DMH linked services with University Extension programs including Farm Outreach Coordination Program, Legal Aid and flood service providers to offer counseling when appropriate.

### **Areas of Excellence**

\* Swift mobilization to assist more than 25,000 persons targeted for crisis counseling.

\* Services to 33,768 individual people (12,157 children; 19,186 females; 14,582 males).

\* Services provided to 2,415 groups defined as greater than two unrelated people.

\* The Governor's Flood Recovery Partnership

\* Acquired Federal grants to complement FEMA-funded services including Public Health Services (PHS) grant for \$1.64 million for Alcohol and Drug Abuse (ADA) outreach; Comprehensive Psychiatric Services (CPS) grant for \$1.8 million for outpatient services and medications; and a \$2 million grant for domestic violence services.

\* Management team coordinated more than \$20 million in flood services funds.

\* Media coverage including Tipper Gore's visit to Winfield, Mo., on November 18, 1993.

\* Monthly flood resources board meetings to track outreach services.

- \* Procured private donations for team building needs and expenses not covered by federal grants (i.e. T-shirts for counselors).

- \* Ongoing site visits for all Project Rainbow service providers by the Program and Management Team, Evaluation and Consultation Team and the Fiscal Team.

## **Recommendations for Future Disasters**

From DMH's initial disaster experience, the department suggests the following recommendations for Community Mental Health Centers (CMHC) and Federal Emergency Management Agency (FEMA) to consider:

- \* A universal release form so that

survivors can access all disaster services with a minimum of paper-work.

- \* Outreach workers believe more impacted Missourians would have accepted the use of FEMA trailers as temporary housing if there had been a photo or brochure available. Most who qualified were afraid of the unknown. Particularly in the rural areas, the best way to provide information is to network.

- \* In rural populations, a community meal allows effective communication and relief of stress among disaster affected individuals. For example, in dealing with recovery, food served at a meeting or assistance center diffuses stress and allows for candid, insightful conversations. In Missouri, food costs are minimal but for a crises counseling

program statewide, such costs cannot be absorbed by the DMH budget. Some food costs have been donated. It might be appropriate for FEMA to review their policy on not allowing food costs of any kind.

- \* A summary of key points of crisis counseling including bullet-point fact sheets of allowable expenses, detailed explanation of federal terminology, etc., would be helpful particularly for new programs.

## **Lessons Learned**

Missouri's flood services are ongoing. DMH and Project Rainbow are serving flood affected Missourians to the best of their ability. Currently, the DMH disaster plan is being revised to include extensive crisis counseling outreach.

# Department of Natural Resources

The Department of Natural Resources (DNR) is responsible for the management and regulation of natural resources in the State of Missouri. The department is organized into five divisions. The Division of Environmental Quality has authority for air pollution control, environmental services, hazardous waste management, land reclamation, public drinking water, soil and water conservation, solid waste management and water pollution control. The Division of State Parks has authority for state park operations, historic sites and preservation, natural history and outdoor recreation. The Division of Geology and Land Survey has authority for geological surveying and mapping, dam and reservoir safety, land survey, water resources, environmental geology and wellhead protection. The Division of Energy has authority for energy conservation, community services and low-income weatherization assistance. The Division of Administrative Support supports divisions with centralized administrative services including budget, internal audit, receipts and reporting, management information services, general services, public information, personnel and accounts payable. All five divisions of the department were affected by and contributed significantly to the flood relief effort.

## The Response

**Services** - The Department of Natural Resources responded to the emergency by:

- \* Dispatched personnel to regional offices in flood-stricken areas to assist in the flood relief effort. These staff assisted in the actual operation of some water treatment plants and helped modify others to allow them to continue to provide water during the crisis.

- \* Provided emergency response to

flood-related hazards on a daily basis. Responses included investigating releases of hazardous substances and reports of containers such as free floating drums and above and below ground fuel tanks.

- \* Established and answered an 800 telephone number to provide information and assistance from 6 a.m. until 10 p.m. seven days a week to local governments and individuals. This service continued through October, 1993.

- \* Traveled to dams which were threatened or failed as a result of the flood. Staff advised dam owners how to prevent dam overtopping by pumping or diverting water, monitored dams to ensure that no downstream damage to life or property was eminent.

- \* Shifted duties of the central office personnel to assist in the flood relief effort. These staff members provided daily contact and technical assistance to public water supply and wastewater treatment facilities threatened or out of service due to flooding. For the over 76 public water system facilities monitored, this dependable daily contact and assistance was reassuring.

- \* Offered flood victims free use of facilities in six state parks and two historic sites. These included Cuivre River, Weston Bend, Hawn, Watkins Mill, Wallace and Washington State Parks, and Arrow Rock and Iliniwek Village State Historic Sites.

- \* Conducted a phone survey of

Hazardous Waste Treatment Storage and Disposal Facilities, as well as many large quantity generators of waste, to assess actual and potential flood damage that might involve hazardous wastes. As a follow-up to this survey, personnel were dispatched to visit certain jeopardized facilities and determine the potential for the release of hazardous constituents, and assess whether facility-specific emergency plans were adequately protecting human health and the environment. In addition, department staff kept in daily contact with criti-



Gordon Belcher, DNR Kansas City Regional Office, conducts drinking water tests for St. Joseph. Photo courtesy DNR.

cally positioned industries where large volumes of hazardous materials and wastes were threatened by flood water.

**Critical Information was provided** by DNR to those who needed the information:

- \* Prepared daily flood reports which detailed each division's flood-response activities for that day. This detailed, up-to-date document was distributed to and used by all State agencies and the Governor's Office as the primary source of information during the actual flood events.

- \* Created "Flood Help for Missouri Citizens" fact sheets on issues including: what to do with flood debris

(including sandbags), restoring drinking water, water pollution, household chemicals and hazardous waste, septic tank failures, flood recovery for historic buildings, the National Flood Insurance Program, and additional contact phone numbers. This detailed comprehensive set of fact sheets were distributed, mostly by hand, to all flood-affected communities.

- \* Created the detailed guidance document "Information for Local Governments - What To Do After The Flood" which clarified regulatory and permitting requirements and explained water and wastewater financial assistance available. This guidance packet was distributed to the officials of all flood-affected communities.

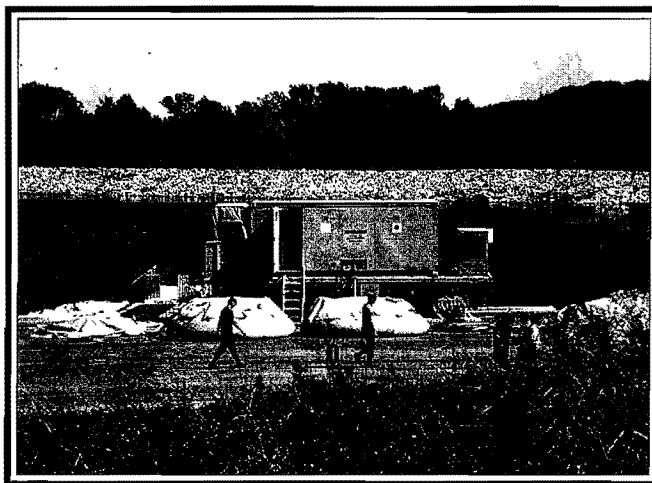
- \* Assembled a detailed packet of information which included procedures for emergency disinfection of well water, procedures for well abandonment and a list of permitted well drillers and pump installers to assist in repair. This packet was distributed to all registered well owners in floodplain areas.

- \* Through DNR's role as the State Coordinator for the National Flood Insurance Program (NFIP), and in response to the requests from flood-affected communities, staff continuously traveled to and provided information at public meetings and workshops. These meetings and workshops were designed to help local officials understand the NFIP, know what to do next and how to do post-disaster permitting of flood plain development activities.

**Regulatory Flexibility exercised by DNR included:**

- \* Issuing emergency permits allowing approximately 20 Missouri

Highway and Transportation Department maintenance facilities to serve as temporary storage areas for drums of hazardous materials which were recovered when floodwater receded. Department personnel worked with the U.S. Environmental Protection Agency to characterize, store and dispose of hazardous substances. A total of 16,556 containers were recovered and managed during the flood responses.



**KC Regional staff helped Army and National Guard conduct tests for turbidity and bacteria for this temporary water supply for St. Joseph. Photo courtesy DNR**

- \* Relaxing state regulations by allowing local governments to establish temporary collection sites for flood-damaged household hazardous waste by simply calling the Department for registration numbers. From the 75 households and the 19 counties who participated, the Department collected and disposed of 12,004 pounds of household hazardous waste at a cost of greater than \$65,000. (It must be noted that many counties such as St. Louis County and Cooper County have household hazardous waste collection sites which are included in the total pounds collected figure.)

- \* Temporarily lifting the State solid waste disposal tonnage fees so flood debris could be accepted without this cost at permitted landfills. Fees remained in place for waste not related to the flood, and landfill operators who

did charge tipping fees for flood debris were directed to continue to collect and remit tonnage fees for all flood debris and municipal waste they accepted.

- \* Temporarily lifted the State landfill ban on yard waste to allow flood-generated yard waste. Citizens were reminded that cut, chipped or shredded tires were still allowed to be disposed of in landfills.

### **Working with Other State Agencies:**

- \* When the Missouri Department of Health (MDOH) Laboratory went down and roads were impassable, DNR had set up a network of private and utility owned labs to do microbiological analyses of drinking water. The original set-up was due to: 1) need for increased monitoring frequency; 2) 48 hours or less mail delivery to the MDOH Laboratory was difficult because of impassable roads; and 3) MDOH Laboratory was flooded - twice. MDOH moved equipment into our

Environmental Services Laboratory so they could continue their work on a limited basis.

- \* Worked in a cooperative effort with the Department of Health and the U.S. Environmental Protection Agency to sample and analyze floodwater to determine if it contained harmful levels of contaminants.

## **The Recovery**

**Financial Assistance provided by DNR:**

- \* Administered the distribution of approximately \$4.5 million to 19 Missouri communities for the purpose of enhancing stormwater systems affected by the flood. These funds were obtained by the Department through State emergency appropria-

tions from State bonds and the soils sales tax.

- \* Administered the distribution of \$2,312,050 to assist 5 communities repair or upgrade their rural sewage systems.

- \* Administered the distribution of approximately \$750,000 to assist Missouri communities to repair or upgrade their rural water systems.

- \* Administered the distribution of more than \$975,000 to 31 counties' soil and water conservation districts to help reconstruct upland soil erosion control structures damaged by heavy rains.

- \* Administered an Emergency Flood Grant Program to repair and rehabilitate flood-damaged historic properties. Over \$975,000 in grant awards have been made to nearly 60 historic buildings.

- \* Offered 1% interest loans to city and county governments to help communities make energy efficient repairs and improvements that will help in the short term and save in the long term.

**Technical Assistance** provided by DNR:

- \* Conducted assessments, conducted local workshops and provided technical assistance to help cities and counties develop or update emergency operating plans for their water treatment facilities. This assessment could include reviewing engineering plans and specifications for flood impacted well and water treatment plants.

- \* Will conduct detailed inspections and monitor all flood impacted landfills to ensure integrity of leachate collection systems, groundwater monitoring systems and gas monitoring systems.

- \* Inventorying all flood impacted sites known to contain underground storage tanks to determine if any

contamination occurred and to follow up on any problems found. Similarly, all Stage II equipment (vacuum hoses on gas pumps) in St. Louis were assessed to ensure that they were functioning properly.

- \* Assisted FEMA and SEMA in performing cultural resource evaluations for more than 2,000 structures as part of Section 404 and Section 406 buy-out programs in approximately 90 communities and counties.

- \* Moving or replacing flood-damaged air quality monitoring stations in the St. Louis area. Flood-damaged stations are being relocated or replaced so they are above the 100 year floodplain elevation.

- \* All State parks and historic sites affected by flood waters are open and welcoming visitors. The four State parks which were hardest hit by the flood were: Big Lake, Wakonda, Lewis & Clark and the Katy Trail State Parks. The Katy Trail recovery efforts have re-opened 100 miles to the pre-flood condition and 15 miles to a passable condition.

## **Actions Taken to Improve Future Disaster Responses**

The Department's Division of Environmental Quality recently completed development of a "Major Disaster Protocol." This will enable the Division to respond to major disasters as a coordinated unit without undue delays. Responsibilities will be assigned and communications procedures organized on a permanent basis. In the event of a major disaster, the time frame for organizing the division for response to disasters will be shortened significantly.

By participating on the Governor's Task Force on Floodplain Management, DNR hopes to have contributed to future floodplain management policy which results in a significant reduction of flood impacts. A few of the recommendations of the Task Force Report include a prohibition on the future placement of hazardous substances and critical facilities from flood hazard areas.



**State Treasurer Bob Holden (Center) presents an award to the Kansas City Regional DNR office for distinguished professional service in the cleaning up and rebuilding after Flood of 1993. Photo courtesy DNR.**

The Division of State Parks identified and inventoried 16 parks and historic sites which are located in a flood hazard area. The purpose of the inventory was to ensure that all facilities located in a flood hazard area are properly insured for future flood events. For those facilities that were not already insured, insurance was obtained, and an expansion item was proposed in the core operating budget to ensure future flood insurance coverage.

DNR is cooperating with the State Emergency Management Agency (SEMA) on the Emergency Operations Plan for the State of Missouri. DNR has participated in all training sessions and drills conducted by SEMA. This will enable the Department to coordi-

nate with other State agencies and volunteer organizations in a more effective manner to serve the citizens of Missouri to protect life, property and the environment.

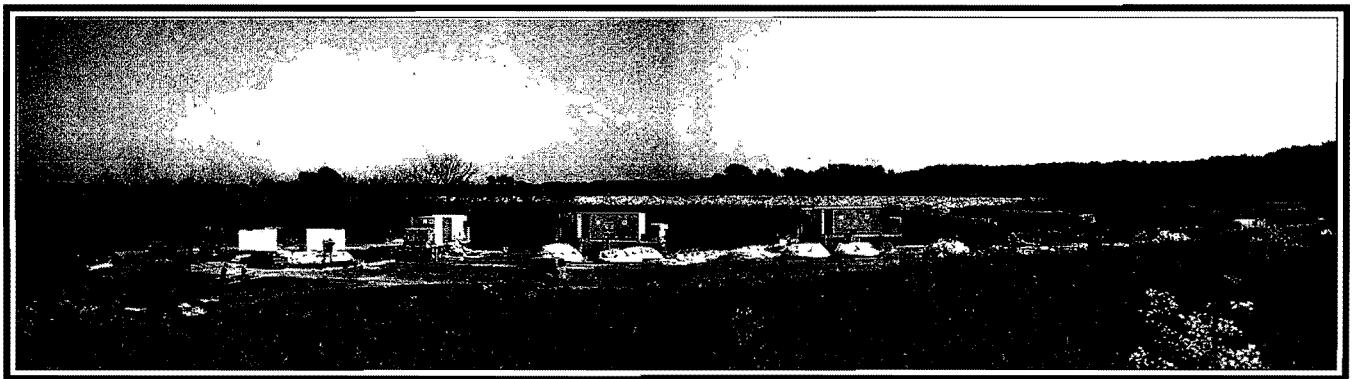
## **Recommendations to Local, State and Federal Governments**

Because of the Department of Natural Resources' direct involvement in providing assistance to public drinking water and public wastewater facilities threatened or impacted by the flood of 1993, we urge local governments to take action to protect these facilities from future floods. The Department is and will continue to

assist local governments to this end.

As one of the State agencies who participated on the Governor's Task Force on Floodplain Management, DNR encourages a commitment from the Governor's Office to implement as many recommendations contained in the Task Force Report as possible.

Because we believe the White House Interagency Floodplain Management Review Committee Report entitled Sharing the Challenge: Floodplain Management into the 21st Century presents a comprehensive, balanced set of recommendations, DNR encourages a commitment from the White House to implement as many of the recommendations for federal action as possible.



During the great flood of 1993, KC regional office staff assisted Army and National Guard Units located at Lake Belcher in Buchanan County. Above are portable Reverse Osmosis and Erdulator Drinking Water Treatment Units. These act like portable surface water treatment plants to make drinking water for the City of St. Joseph. Similar assistance was also provided at Pony Express Lake with Army Unit "Big Red ONE" of Ft. Riley, Kansas. Photo courtesy DNR.



# Office of Administration

The Office of Administration is composed of the Division of Budget and Planning, the Division of Data Processing and Telecommunications, the Division of Design and Construction, the Division of Facilities Management, the Division of General Services and the Division of Purchasing and Surplus Supply.

## Division of Budget and Planning

Division of Budget and Planning analyzes budget policy issues, provides fiscal information, analyzes the State economy and tax issues, estimates revenue collections and reviews legislation with budget implications. This division also prepares the Executive Budget, appropriations bills and oversees agency spending plans.

### Flood Response and Recovery

Budget and Planning focused on four specific flooding/disaster concerns.

- \* The Missouri Budget Office Program Director in Washington D.C. took the lead in gaining federal funding and program support for the flood response and recovery. The director also coordinated State agency responses to the damage and their need for funding in both the response and recovery stages.

- \* The Division assigned an accountant to track all expenditures related to the flood.

- \* The Division produced an economic impact analysis which was used to secure federal, State and local government support for disaster response. Individual analysts were assigned to State departments to review program disaster needs and responses. This information was used to introduce legislation and appropriations for Missouri's Extraordinary Session in September 1993 for the purpose of disaster response and recovery.

- \* The Assistant Director for Planning served on both the Governor's Flood Partnership Group (December

1993 through June 1994) and on the Governor's Task Force on Flood Plain Management (November 1993 through July 1994).

The Flood Partnership Group was a group of charitable and not-for-profit agencies and State agency representatives who focused on improving services to Missouri's flood survivors in both the response and recovery stages.

The Task Force on Flood Plain Management was a group of State and local governments and private agencies who developed recommendations to actively manage the Missouri and Mississippi River floodplain.

### Areas of Excellence

- \* The Missouri Budget Office program director in Washington D. C. was instrumental in Missouri gaining needed federal support to begin the flood response and recovery stages. The coordination between Missouri and the federal government resulted in a lower required state-federal match for public assistance funding and provided added federal funding support through Community Development Block Grant program, federal Agricultural programs, Health and Human Services programs including the Social Services Block Grant and programs for Mental Health Services.

- \* The Division coordinated appropriation requests and damage information for the General Assembly and the Governor during the Extraordinary Session in September 1993. A combination of funding approved by the General Assembly and the Governor coupled with the selected release of

the Governor's three percent reserve funds provided the State's match for the Federal Public Assistance funds.

- \* The Governor's Flood Recovery Partnership Group brought State agencies, charitable and not-for-profit groups together to find assistance, extend federal deadlines and provide GAP grants for flood survivors. The group published a Flood Recovery Research Guide which will serve as a model for State agencies and charitable organizations to improve future disaster services in response and recovery stages.

- \* The Governor's Task Force on Flood Plain Management brought State agencies, environmentalists and agricultural interests together to make recommendations to actively manage the Missouri and Mississippi River floodplain. Recommendations ranged from regulating State growth, hazardous materials and levees to hazard mitigation, building codes and national flood plain insurance programs.

### Lessons Learned

- \* There needs to be better coordination between the State and the federal government so Missourians can get more benefits.

- \* In working with more than one federal agency, it is difficult to understand the individual rules, regulations, eligibility requirements and application processes.

- \* Both federal and State governments try to use "normal" systems and programs to respond to "abnormal" disaster situations. The "normal" systems are too slow and too categorical to respond quickly to the needs of

individuals.

\* The new State disaster plan should better describe the Division of Budget's role, responsibility and expectations during future disasters.

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## Division of Data Processing and Telecommunications

During the Summer Flood of '93, the Division of Data Processing and Telecommunications was in a full-time mode of developing contingency plans that could be executed to meet the needs of State agencies if the flood waters flooded state buildings. The division specifically targeted the State Data Center, the State Telecommunications and other multi-agency processing requirements.

### Issues, Response and Recovery

**State Data Center (SDC)** - manages a mainframe computer center on the first level of the Truman State Office Building in Jefferson City. In addition to the Amdahl 5995 mainframe computer, the SDC also house various other processors for the Department of Economic Development and the Department of Corrections. The main issue that would rise related to the flood was the possibility that the water would rise to 42 feet thus flooding portions of the first floor of the TSOB.

During the flooding, the SDC did not have to execute any disaster recovery measures as the rising water reached 40.6 feet around the TSOB not the 42 foot level which would have prompted an evacuation. The Department of Corrections, however, did disconnect their AS/400 processing systems in anticipation of eminent evacuation. This move by Corrections caused an immediate unavailability to the applications that were resident in those computer systems.

If there had been an evacuation, all necessary hardware would have been moved to the fourth floor of the TSOB into the large conference rooms and set up renewed processing in those locations. Amdahl, IBM and other SDC vendors met with the State and agreed to execute their portion of the plan if the water reached the 42 foot level. A possible weakness in the plan existed in the area of communications network facilities since an adequate number and type of cable ports do not exist on the fourth floor. The SDC currently has a disaster recovery contract with a third party vendor that would be very expensive to implement should the actual disaster occur.

**State Telecommunications** - This section is responsible for acquiring telephone services for all State agencies. During the flood, any State agency may have experienced outages similar to those that occurred in Iowa, when the State-owned fiber optic cable facilities were washed away. The main issue was to provide state agencies with alternate network services should the need arise.

All telephone service comes directly from contracts with vendors of the public switched networks owned by Sprint, MCI, etc. Basically, business as usual was the watchword in this section. State agencies did order new circuits is an everyday occurrence. Since the telecommunications facilities are owned by the telephone companies, a fiber cable wash-out near Hermann was handled by the vendors when they switched to alternate circuits. State telephone service was constantly

available during the flood.

Planning meetings were held to discuss the possibility of moving the State Operations staff which is housed on the first floor of the TSOB to the United Telephone office in Jefferson City if water level was 42 feet. A mutually agreed plan developed between the State and the local telephone service vendor to relocate the State Telecommunications section about three blocks away.

**State Electronic Mail Network** - All State agencies have, or should have, electronic mail (e-mail) capabilities with their own organization and other State agencies. The main issue was to discover how this intra- and inter-agency e-mail connectivity was to be used and whether the connectivity actually existed.

When the flood occurred during the Summer of '93, several State agencies were tasked by the Governor's Office to prepare press releases, status reports and other correspondence for immediate dissemination. The Department of Natural Resources specifically discovered that the electronic office system software/hardware they had installed for such purposes were unable to communicate with other State agencies and the Governor's Office. In addition, other groups within the same State agency could not communicate with each other. Software incompatibility wouldn't allow for seamless communications. Also, some agencies chose not to communicate electronically via e-mail choosing FAX devices or hand-carried letters as the alterna-

tive. Finally, user training on the use of state e-mail network was lacking.

In the months that followed the flood, the State Data Processing Managers Group formed a sub-committee to find a solution. The approved solution was to acquire a software product that would reside on the Local Area Network (LAN) facilities that has compatibility with several office systems software/hardware. The required software/hardware (IBM Mail LAN Gateway/2) has recently been procured through the Division of Purchasing and Materials Management and is available to all State agencies at minimal costs. The license that has been established allows gateway support for the following e-mail systems:

Lotus Notes, IBM Mail Exchange, cc:Mail, OV/MVS via RSCS, MS:MAIL, CMA via RSCS, DISOSS and OV/MVS, PROFS via RSCS and OfficeVision/400.

A component for WordPerfect Office should be available in the fourth quarter of 1994.

## Lessons Learned

**State Data Center** - is in the process of acquiring a new disaster/recovery contract with a third party vendor that will provide affordable Hot Site and/or Cold Site locations. Communications facilities that provide adequate uninterrupted service is a mandatory in any plan that SDC adopts.

**State Telecommunications** - should continue to send their telecommunications business to third-party vendors. As proven by the Flood of '93, the State can continue to provide the necessary service with the existing state and private telephone company partnership. Moving State operations staff to the United Telephone office should continue to be a viable plan in the event the first floor of the TSOB has to be evacuated.

**Statewide E-mail Network** - All State agencies should acquire the IBM Gateway product and connect their office systems. Testing of this new addition to the statewide e-mail network must be conducted. Training for office system users should occur as soon as possible.

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## Division of Design and Construction

### Lessons Learned

Develop a group of experienced technical personnel who can review, evaluate, then make recommendations and cost estimates for repair of flood damaged infrastructure.

Setup a group of consulting engineering firms, geographically located throughout the State and consisting of appropriate disciplines, who can quickly react to design, construction management,

technical engineering analysis and construction cost estimating situations as specific problems develop.

Set up contingency plans for the location, design and construction of emergency housing that is usually required during floods. This effort will probably need to be coordinated with federal resources to maximize the effort

Identify a group of technical expertise in areas of structural,

hydraulic, mechanical, electrical, environmental, chemical and agricultural engineers who would be available for consultation during a flood should specific unusual life safety situations develop.

Set up emergency funding policy and procedures to pay for the above ideas if or when the need arises. This procedure would include funding for regular working hours, overtime hours, meals, travel, lodging and miscellaneous expenses.

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## Division of Facilities Management

The division of Facilities Management is responsible for maintaining the entire Capitol Complex. In addition, it also maintains State office buildings in Kansas City, St. Joseph, St. Louis and Springfield. The hardest hit area was the Capitol Complex where two buildings, the State Health Laboratory

and the EDP Building, lie in the flood plain. The buildings located in the other cities were virtually unaffected except for St. Joseph, which experienced operational problems when the city water plant became inundated.

### The Response and Recovery

All efforts were made to maintain normal operations in the wake of the rising flood waters. Staff representatives attended regular community-wide

planning meetings and kept abreast of weather data and flood level forecasts issued by responsible agencies. Internally, staff developed a heightened awareness of problems beginning to develop and anticipating additional needs to head off other problems.

- \* As water began to rise, parking lots became unusable. City and State officials cooperated with each other by making shuttle bus service available from outlying areas.

- \* The EDP Building and the Health Laboratory were most significantly affected. Rising waters mandated the interruption of electrical power to the Health Laboratory for approximately three weeks. The utility company was able to install temporary electrical service to keep the EDP building operational.

- \* Rising flood waters came dangerously close to inundating the electrical switchgear transformers serving the Capitol Building and the central chilled water plant. Sandbagging efforts continued throughout the disaster as attempts were made to keep facilities operational for as long as possible.

- \* When the St. Joseph water plant suspended operations, the State office building was without domestic water and the water needed to operate its air conditioning system. Large water tanks were acquired and used to transport water from other locations until regular water service could be restored.

- \* Emergency repairs were made as quickly as flood waters receded. Damages were assessed and plans were developed to institute changes which would alleviate or mitigate damage in future flood situations.

## Areas of Excellence

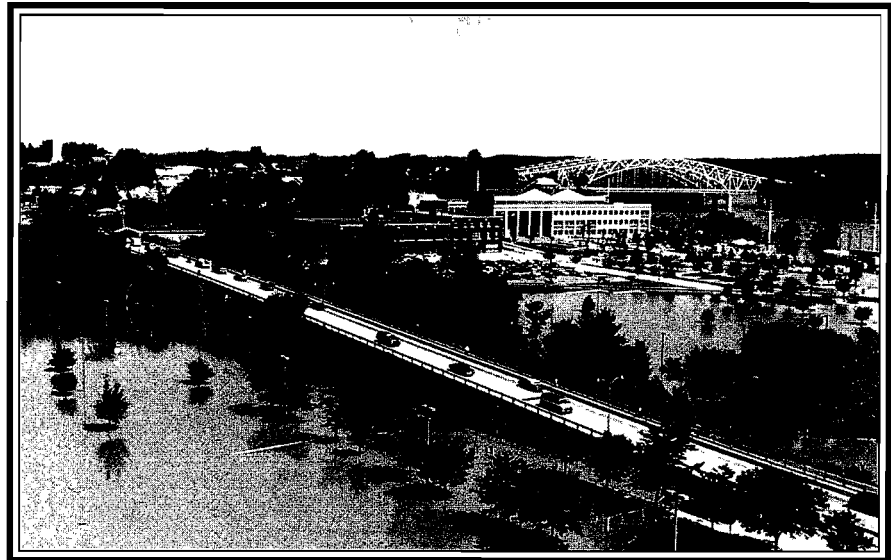
- \* Cooperative spirit and efforts of all staff and volunteers.

- \* Help received from Department of Corrections in supplying manpower for sandbagging and cleanup.

- \* Help received from Division of Design and Construction with funding for emergency repairs and incorporation of longer term repairs into existing or new design projects.

## Lessons Learned

The Division of Facilities Management has never experienced a disaster of this magnitude. Valuable lessons were learned about operating under disaster conditions. Unfortunately, many of these lessons have been/will be forgotten because no efforts have been made to record all of the pieces of information that should pass on as personnel turnover occurs.



High Street Overpass, Jefferson City, only street open 7-26-93 for east-west city traffic. Secretary of State Office Building in background. Photo courtesy Mark Schreiber, Dept. of Corrections

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## Division of General Services

General services coordinated alternative transportation and parking for State employees during the crisis. We believe our measured response to the changing transportation and parking situation was appropriate. Similar situations in the future will be dealt with in a similar fashion.

# Division of Purchasing - Agency for Surplus Property

The Missouri State Agency for Surplus Property (SASP) is responsible for transfers and disposal of state surplus property and acquires donated property declared excess by federal government agencies for the distribution of such property to public supported entities.

## The Response and Recovery

During the flood emergency, SASP maintained its regular organizational structure. The agency opened on weekends and established teams on 24-hour call to expedite the receipt and distribution of property required by local jurisdictions to cope with the emergency.

The agency focused its assets on obtaining much needed property for coping with emergency flood conditions. Coordination with General Services Agency (GSA) of the federal government resulted in the location of 4 million plus sandbags, road graders, bulldozers, front loaders, pumps, generators, bedding and medical supplies, water trailers and other numerous needed items. In some cases GSA coordinated shipping with transportation companies for trucks to roll non-stop with two drivers to expedite receipt and also covered shipping costs. In addition to receiving property for use in Missouri, the SASP acted as a staging area for trans shipment to other affected states such as Kansas, Nebraska, Iowa and Arkansas.

Close communications was established and maintained with the State Emergency Management Agency (SEMA) to meet the demands for location, receipt and donation of property. Teams of SASP personnel were established to be on 24 hour call and work weekends to facilitate the receipt and donation of property.

Transportation of property to supported entities was in some cases direct shipments from point of origin nationwide via commercial trucking companies. The major portion of shipments were coordinated through SEMA and performed by Missouri National Guard transportation companies.

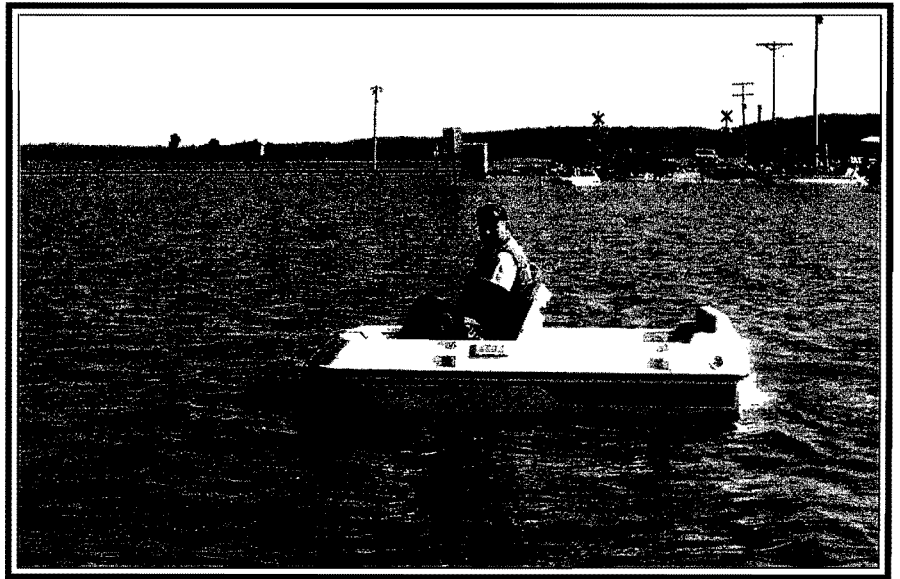
## Areas of Excellence

Communications with other departments were performed in a timely and cooperative manner. Of special note, is the efforts put forth by GSA personnel to locate and assist in obtaining the release of massive quantities of property, as well as, the professional

and high spirited manner SEMA personnel displayed with all the pressure and strains placed on them. All SASP personnel pulled together and worked together as a team.

## Lessons Learned

The State Agency for Surplus Property had never played the role it did in a disaster of this size or area range. As a whole, we were not familiar with SEMA procedures or the extent to which we would become involved. It would better serve this agency and the general population, if a SASP representative was included in future disaster readiness training sessions.



Holt County Sheriff Bernie Delaney in his new free Kawasaki boating on 111 Highway. Many donated boats and flood equipment was dispatched to local governments through Surplus Supply. Photo courtesy Cpl Charles Bent, Mo Water Patrol.

# Department of Revenue

## The Response and Recovery

- \* Extended, upon request, the time and/or pay for individual and corporate taxes (including estimated income tax payments) for those individuals and corporations directly affected by the flood until October 15, 1993.
- \* Waived all penalties on the late filed excise taxes including sales and use tax, motor fuel/special fuel taxes etc., if taxes were paid by September 15, 1993
- \* Waived all penalties on late filed withholding taxes, if taxes were paid by September 15, 1993.
- \* Expediently processed amended Missouri income tax returns submitted as a result of amended federal returns due to casualty losses.
- \* Offered relaxed partial payment agreements with terms including a low down payment of 20% with a balloon payment at the end of 12 months.
- \* Granted additional time to taxpayers under audit and/or investigation in flood areas.
- \* Avoided contacting flood victims to set up new audits/investigations.
- \* Processed court ordered requests for extensions of time to file required documents for tax or motor vehicle/drivers licensing laws.
- \* Extended the time for citation testing and submission of proof of mandatory insurance.
- \* Waived Commercial Drivers Licensing requirements pursuant to Executive Order 93-15.
- \* Employees in several Divisions collected supplies and money in the central office for flood victims (some of whom were Department employees and their families).
- \* Employees were permitted to adjust their work schedule to allow them to volunteer in flood relief activities or to handle personal matters affected by the flood (alternate routes, babysitter arrangements, car pools, etc.)
- \* Department of Revenue employees were at the disaster aid offices set up by the federal and State governments to answer questions from victims. Written information was available at each office directing the public to specific contact points within the Department of Revenue for forms or answers to their questions.
- \* Information and personnel were available to answer questions at all Department of Revenue local offices.
- \* An information center was established within the Department as the central repository for data about the flood and a daily update was provided to all employees.
- \* The Department of Revenue, in accordance with Executive Order 93-15, established a single department-wide pool to receive voluntary donations of annual leave from Department of Revenue employees. Donated annual leave was used by Department of Revenue employees who experienced a flood-related loss of personal property and/or subsistence, or to volunteer in a flood relief effort.



# The Department of Social Services

Two major divisions of the Department of Social Services who played key roles in the Great Flood of '93 were the Division of Aging and the Division of Family Services.

## Division of Family Services

The primary mission of the Department of Family Services was to ensure that resources were available for mass care for all Missouri citizens affected by the flood. The division was in daily contact with the State Emergency Management Agency (SEMA) assessing areas of need. This information was shared with the Department of Social Services and all its appropriate divisions at the State and local levels. Daily contact was also maintained in the initial phases with USDA and the related private sector entities such as the Red Cross, Salvation Army and other volunteer agencies.

### The Response

- \* Local Division of Family Service county staff were present to assist flood victims at all Disaster Application Centers.

- \* DFS allocated resources for increased need for day care and counseling services to flood victims.

- \* USDA commodity foods for mass feeding were made available to Red Cross, Salvation Army, food banks, community action agencies, schools and churches. From May 4, 1993 through October 21, 1993, DFS distributed 1,054,821 pounds of USDA donated food valued at \$783,815. This provided 1,602,838 meals to flood victims and disaster workers.

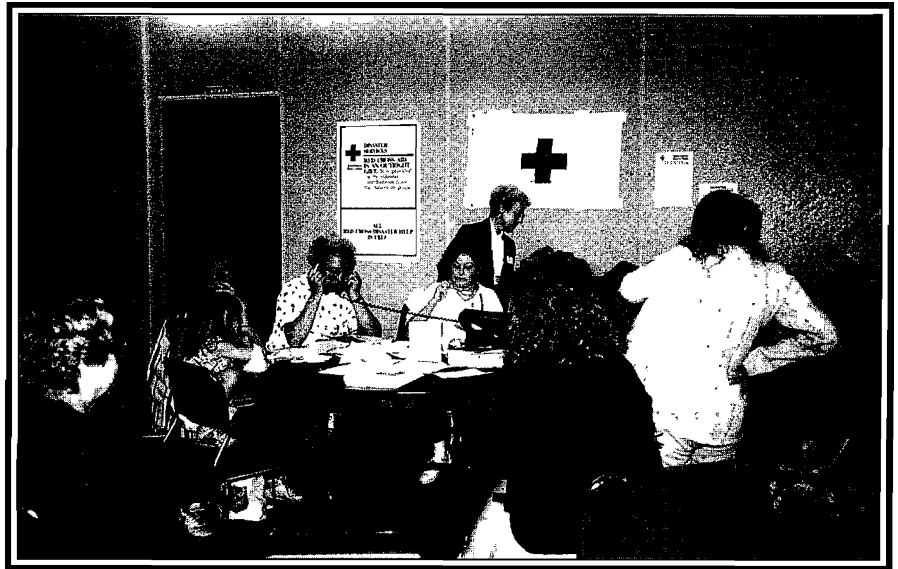
- \* Emergency Food Stamps were issued from July 16, 1993 through August 13, 1993, under USDA disaster guidelines. There were \$5,525,741 in food coupons issued to 17,471 disaster households (59,498 individuals).

- \* Individual and Family Grant

Program was a joint SEMA/DFS responsibility. SEMA was the overall administrative agent with DFS

this grant.

- \* Applied for and received a



**Department of Social Services employees staffed Disaster Application Centers throughout the state during the four flood periods**

providing staffing through part time employees which they supervised on the daily program operations. This was changed during the disaster to become a SEMA operation with the DFS being support to the operation for personnel recruitment.

- \* County DFS staff continued to operate and maintain all regular programs.

### The Recovery

- \* Applied for and administered a Social Service Block Grant of \$2.5 million. This grant was used to provide treatment services, day care, replacement of household items, rent payments, etc., as a gap between family needs and federal flood assistance. DFS has expended all funds for

Community Service Block Grant of \$3.57 million. These funds have been contracted to the Community Action Agencies (CCAs) statewide to provide outreach, case management, coordination of resource needs and resolution of unmet needs. As of June 30, 1994, the local CAAs have expended \$2,107,970 to assist flood victims. This grant expired September 30, 1994.

- \* County DFS staff served on the organized unmet needs committees to help assist flood victims.

### Areas of Excellence

- \* DFS received excellent cooperation from USDA in the Food Distribution Program in locating and helping to get valuable food resources where they were needed.

\* DFS received cooperation from USDA in obtaining the necessary emergency declaration for disaster food stamp issuances.

\* SEMA did an excellent job in keeping DFS apprised with daily status reports.

## Problem Areas

\* Documentation regarding use of USDA donated foods by not for profit agencies especially the Red Cross was a problem. This was mainly due to a lack of record keeping and frequent personnel changes.

\* The relationship between SEMA/DFS in the operation of the IFG

program was difficult in terms of who was in control. This problem has been eliminated by SEMA's reorganization and assuming full program responsibility. DFS now is a resource to SEMA for personnel recruitment for the IFG operation.

\* There was confusion/disagreement in some instances by some federal/state agencies as to DFS staffing at the Disaster Application Centers.

\* There needs to be a universal database established in future disasters that allows all federal/state counterparts to avoid duplication of services.

\* In the initial phase of the disaster it was uncertain as to how to go about

the process of applying for FEMA assistance by the State agency.

\* Problems encountered with the Emergency Food Stamp Issuance were:

1. Lack of necessary computer support for outreach staff to properly assess individual applicants.

2. Inability of any State agency to provide specific demographic data (i.e. by street location) on individual areas impacted by the flood. This should be alleviated in the future by the updated mapping capabilities of the new SEOC

3. Recognition by DFS that USDA needs to revise/clarify its policy procedures for Emergency Issuance in disaster situations.

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## The Division of Aging

The primary mission is to provide outreach and advocacy services for older Missourians so that disruption and unreimbursed losses for elders are minimized. The division defined the roles to be performed by Alternative and Institutional staff and assisted the 10 Area Agencies on Aging (AAA) in development of programs and services designed to meet the needs of elderly flood victims.

## The Response

\* Staffed Disaster Application Centers

\* Distributed information on Aging programs available to assist the client immediately.

\* Directed homemaker/chore or personal care units to existing clients.

\* Assisted in provision of meals or care at shelter areas.

\* Provision of physical labor to offset flooding conditions.

\* Investigated disaster related reports of abuse, neglect and exploitation.

\* Contacted elders to determine needs and provide assistance.

\* DA regional offices contacted all nursing homes to assess the need for evacuation. Provided assistance as needed to relocate residents.

\* DA sanitarians assisted with water testing.

\* Developed a statewide flood disaster network with DA regional offices, 10 Area Agencies on Aging (AAA), and local community agencies serving the elderly

\* Developed a computerized tracking system for clients with unmet disaster needs, new clients with unmet disaster needs, as well as, new clients experiencing disaster related problems.

\* Established 24-hour DA command post with regional and county offices

and AAA offices.

\* Coordinated relief efforts with the AAAs and the Administration on Aging (AoA) regional office.

\* Assisted AAAs with developing budgets for disaster services.

\* Submitted grant applications to AoA for disaster relief services.

Area Agencies on Aging:

1. Opened senior centers and meal sites for emergency shelter and feeding for victims and relief workers.

2. Contacted elders to determine needs and provide assistance.

3. Staffed Disaster Application Centers

4. Expanded home delivered meals, transportation, home clean-up and chore services.

## **The Recovery**

- \* Distributed flood assistance information to DA regions and to the 10 AAAs.

- \* Assisted elders in locating alternate housing.

- \* Obtained and disbursed to the AAAs three federal grants totaling approximately \$5.5 million for elder outreach, advocacy and gap-filling services.

- \* Distributed to the AAAs lists of all elderly SEMA applicants for follow up regarding unmet needs.

- \* Consulted with AAA flood recovery advocates regarding special needs and individual case resolution.

- \* Provided program information regarding services available to private and public agencies.

- \* Employed an advocate for the Northwest area to follow-up on referrals and coordinate efforts between the NW AAA and the State

unit.

### **Area Agencies on Aging**

1. Conducted outreach efforts to locate elders who had not applied for assistance by distributing written information, conducting town meetings and attending local Unmet Needs Committee meetings.

2. Helped elders apply for multiple recovery benefits.

3. Helped elders file appropriate appeals

4. Coordinated with and referred to other disaster recovery agencies.

5. Advocated for the old population and individual elders.

6. Identified gaps in recovery services and developed resources to fill those gaps.

## **Problem Areas**

Federal support was delayed for several months, thus services to the

elderly were not provided as efficiently and quickly as we would have liked.

In the Disaster Application Process, the elderly are slower to seek assistance and when problems are encountered, the elderly tend to drop out of the process.

## **Recommendations**

FEMA should reinstate the agreement to provide a mission assignment to AoA to fund elderly disaster services. FEMA should review the process of applying for assistance to make it more streamlined and less confusing to older adults.

The Disaster Application Process - A one stop, single entry system coordinated by an inter-agency disaster team. The team would develop a case management plan for the client and an assigned member would act as the client's intake person and follow the client through the system. Disaster advocates specifically designed to assist the elderly are a necessary part of the team.

# Department of Public Safety

The Department of Public Safety is responsible for coordinating statewide law enforcement for the purpose of ensuring a safe environment for Missouri Citizens. The department is organized into 10 divisions. In a statewide emergency, five of those divisions and the Director's office are response agencies. During a statewide emergency, the Missouri National Guard and the State Emergency Management Agency report directly to the Governor's Office once the Governor declares a State of Emergency (SOE) and the State Emergency Operations Center (SEOC) has been activated. Other divisions that have emergency response duties are: The Missouri Division of Fire Safety, Missouri State Highway Patrol and Missouri State Water Patrol.

## Department of Public Safety - Office of the Director

During the 1993 Flood, the Department of Public Safety, Office of the Director served as the overall coordinator for the Public Safety response. In addition, the Director's Office established a "pool" of law enforcement officer volunteers from around the state. These volunteers could be sent to requesting agencies in flood emergency areas for assistance.

### Division of Fire Safety

#### The Response and Recovery

During the "Great Flood of '93", Fire Safety played an active role in areas adjacent to major rivers. Missouri has a "Statewide Mutual Aid Program" in the nine regions of the State. Each region pledges to respond to emergencies in other regions, supply other regions with manpower, tools, equipment and other coordinating services during an emergency. During the Flood, one of the regions that would normally have been contacted had drained all their resources with their own involvement in flood response. However the mutual aid program and fire safety did provide

great assistance in a crisis.

For future planning purposes, all State agencies need to review the lessons learned from Governor Carnahan's conference with county and local officials on the aftermath of the flood. One of the biggest aids, State agencies can provide to Missourians is documents on disaster recovery - from cleanup to the importance of hiring competent and credible workmen for restoration work.

Public service announcements are a wonderful way to educate citizens about disaster recovery.

#### Future Recommendations

In future mutual aid programs, Fire Safety will add the names of people that could provide and man boats during an emergency. These people could be available to provide additional rescue vehicles to fire departments and public safety organizations.

Fire Safety is looking to acquire a command vehicle. In flood situations, this vehicle could travel along the path of the flood offering mile-by-mile mutual aid to communities. Of course this vehicle would also need to be equipped to deal with hazardous material spills, major fires and other disasters.

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## The Missouri State Highway Patrol

#### The Response

Although varied, the activities of the Missouri Highway Patrol were directed toward the response phase of the flooding. The basic services provided by the Missouri Highway Patrol were:

- \* Information to the public regard-

ing alternate routes for travelers;

- \* Road closing information statewide and establishing a toll-free number for automated response;

- \* Security patrols on roads affected by flooding;

- \* Traffic control at intersections on major routes associated with detours caused by flooding;

- \* Aircraft support utilized in transportation and rescue efforts; and

- \* Investigation of victimization by fraudulent or illegal scams associated

with the cleanup

As usual, the spirit of cooperation and working relationship between our agencies was good. The proficient manner in which SEMA implemented the state emergency plans and directed actions of State agencies and departments during this disaster was commendable.

We believe by working together, our joint efforts do make a difference. As always, the Missouri Highway Patrol stands ready to assist SEMA in all matters of mutual concern.

**Sgt W. F. Ruggs, Troop F watching traffic on remaining lanes of 54. Photo courtesy Missouri Highway Patrol**



## Missouri State Water Patrol

### The Response

The overall response and coordination of resources was very good despite limited facilities and a lack of common means of communications between agencies. The Water Patrol had activated officers for emergency flood duty to areas that historically (usually seasonally) experience flooding problems well before the disaster declaration.

The notification system was adequate (initially) in order to mobilize support agencies. The communications and liaison with local "on scene" agencies appeared to be adequate. The Water Patrol has worked with many of the local Emergency Operations Centers (EOC) in previous flood situations. Our officers are familiar with the communities and geographical areas that historically experience flooding.

The Water Patrol was prepared to respond to various emergency situations in hazardous areas due to the availability of specialized equipment,

training and experienced personnel.

The SEOC provided a good situational log on a daily basis, despite limited facilities and manpower. Statewide river level reports and predictions were also provided on a daily basis. The SEOC developed an

early understanding of the capabilities and limitations of the Water Patrol. Requests for support appeared to be well thought out.

Disaster response and resource coordination was more easily facilitated because of pre-planning and an



**Ptln Wayne Talburt of Mo Water Patrol at West Alton. Photo courtesy Cpl Charles Bent, Mo Water Patrol**

overall cooperative spirit between agencies and individuals involved.

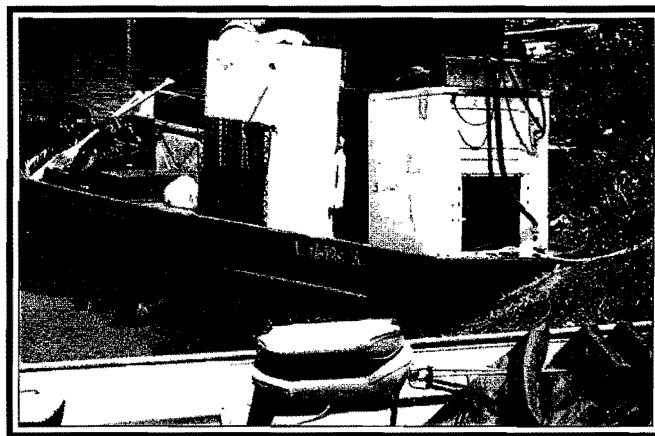
## Problem Areas and Lessons Learned

\* Our response to multiple flood disaster sites throughout the State resulted in a rapid depletion of equipment and personnel assets. Because the flood developed during the peak of the boating season, we did not have adequate personnel to conduct long term operations at the flood areas and regular patrol assignments. Our overall lack of staff made it difficult to perform both missions.

\* The Water Patrol has a minimal number of rescue boats and related equipment assigned with officers around the State. We found that the long term use of this equipment took a significant toll on their operational value. We had a lot of problems replacing damaged equipment. Operating marine equipment in a flood environment results in significant damage to those materials. We need more immediate access to replacement boats and particularly outboard motors.

\* There was a great demand for small flat bottom boats and outboard motors from the local fire and rescue units in the flood stricken communities. Some thought should be given to maintaining a surplus of marine equipment for future emergency use.

\* There was initially a significant breakdown in communications between the Coast Guard and the Water Patrol. Many of these problems were worked out through the course of the disaster. In the early stages of the flood both agencies were operating and possibly overlapping without an effective line of communications. In the later stages of the flood, we had developed a more cooperative effort and even had combined crews working out of patrol boats. In future times of disaster, it is extremely important to activate critical lines of communications (liaisons) in order to get maxi-



**Luckily we didn't have serious capsizings or drownings.**

**Cpl Charles Bent, Mo Water Patrol**

imum use and benefit from personnel and equipment from all agencies and jurisdictions involved.

\* The Water Patrol Dive Team provided critical support in many areas during the flood. We need to continue to upgrade our equipment and level of specialized training for a flood scenario.

\* Specialized training in "flash flood" type rescue should be made available to all water patrol officers. This type of rescue work requires unique, specialized training and equipment.

## Departments of the Army and Air Force Headquarters of Missouri National Guard Office of Adjutant General



### The Response

The Missouri National Guard and the State Emergency Management Agency Operations Centers are located in the same building. Both were activated at noon on July 4, 1993 by Governor Mel Carnahan. Missouri National Guard units were alerted for duty at that time. The units were called to duty at 5 p.m., July 4, 1993 based on requests for assistance from the Governor's Office. Initially, units were alerted and controlled by the Adjutant General through the State

Area Command (STARC) Headquarters in the State Emergency Operations Center (SEOC).

Once more than four company/detachments which exceeded the size of a battalion were called up, Task Forces were formed. Three Task Forces were formed for particular areas of operation. Task Force Northeast was activated on July 9th. Task Force Southeast was activated on July 11. Task Force Northwest was activated on July 12, deactivated on July 18 and reactivated on July 24. The STARC



continued to run operations in Central Missouri out of the State Emergency Operations Center.

A total of 4,229 (or 48%) Army and 1,386 (or 50%) Air or 5,615 Guardsmen were called for flood duty during the Great Flood of 1993. This was the largest peacetime call up of the Missouri National Guard in history. The greatest number of Guard (3,176) served on July 29, 1993. Of the 102 Missouri counties declared disaster areas, the Guard was assigned to 24 counties on the Missouri River, 12 counties on the Mississippi River, one county on the Grand River. The Guard had flood duty in 85 Missouri communities.

The Guard worked in the following communities: Alexandria, Gregory Landing and Wayland in Clark County; Canton and LaGrange in Lewis County; Taylor, West Quincy, Palmyra and Hannibal in Marion County; Louisiana in Pike County; Elsberry and Winfield in Lincoln County; St. Charles, Orchard Farm, Portage Des Sioux and West Alton in St. Charles County;

The City of St. Louis, Bellefontaine-Neighbors, Chesterfield and Lemay in St. Louis County; Arnold, Imperial, Kimmswick, Festus, Herculaneum and Crystal City in Jefferson County; Ste. Genevieve in Ste Genevieve County; Perryville and McBride in Perry County; Cape Girardeau and Dutchtown in Cape Girardeau County; Commerce in Scott County; Washington in Franklin County; Rhineland in Montgomery County; Gasconade and Hermann in Gasconade County; Chamois in Osage County; Jefferson City and Osage City in Cole County; North Jefferson City in Callaway County; Hartsburg and Rocheport in Boone County; Lupus in Moniteau County;

Franklin and Glasgow in Howard County; Brunswick and Keytesville in Chariton County; Grand Pass and Malta Bend in Saline County; Carrollton, Norborne, DeWitt and



**Sandbagging line operations. Photo courtesy Mo National Guard**

Wakenda in Carroll County; Lexington and Napoleon in Lafayette County; Hardin, Henrietta, Camden, Fleming and Orrick in Ray County; Kansas City in Jackson County; Excelsior Springs and Missouri City in Clay County; Riverside, Parkville and Bean Lake in Platte County; St. Joseph, Rushville and Agency in Buchanan County; Amazonia, Nodaway, Rosendale and Bolckow in Andrew County; Mound City, Big Lake and Oregon in Holt County; Fairfax, Tarkio, Rock Port and Watson in Atchison County; Pattonsburg in Daviess County and Saverton in Ralls County.

Some of the missions the Guard performed at the request of Civil authorities included: damage assessment, search and rescue, traffic control, neighborhood security, aeromedical evacuation, transportation of personnel, equipment or materials; sandbagging support, engineering support, emergency levee construction and improvements, evacuation support, water support, generator support, lighting support, prison security, casket retrieval and security, and rafting operations to deliver supplies.

Conventional telephone was the primary means of communication between the SEOC and the Guard Units. When phone lines were damaged by flood waters, the State HF

radio network became the secondary communications system between the SEOC and the Units. Units used cellular telephone and military radio equipment between the command posts and the deployed units.

Air Guard units were trained to operate Army equipment primarily the HUMMV.

## **Areas of Excellence**

Morale remained high throughout the State Emergency Duty operations. The soldiers felt the importance of this duty and saw the positive impact on local communities and citizens.

## **Observations and Problem Areas**

**State Level Coordination** - maintain coordination with the Governor's office, SEMA, State agencies and local governments through SEMA to understand the requirements of National Guard Assistance. State agencies and local communities must use request channels. SEMA must verify the mission is valid and the Guard is the **only** agency that can perform needed duties.

**Local Level Coordination** - coordination with local officials is

required to assess both the mission and identify required resources. This coordination identifies the primary local point of contact for the unit commander. This also establishes the Guard response and when the mission will be completed. Problems arose when a local official other than the primary point of contact arrived and tried to redirect the Guard's mission.

**Chain of Command Assistance** - this needs to be used for assessing missions, establishing the first contact with local authorities and assisting subordinate units during the emergency activation process. This is of even greater importance in releasing subordinate units from emergency



**Helping hands come in all sizes - when it came to sandbagging there were no strangers. Photo courtesy Mo National Guard**

duty.

**Integration of Communications** - plans should be developed to integrate all communications resources such as cellular phones, commercial telephones, HF Radio, FM Radio and Army/Air guard communication systems. Problems existed with commercial lines due to flooding and peak usage, cellular access difficulties, telephone credit cards. The use of an integrated system facilitated command and control.

**Decentralized Control** of air and ground transportation assets allowed the Guard to productively use air and ground resources plus kept the number of personnel and machines to a minimum. The forward deployed air resources were controlled by the EOC for maximum utilization and were forward deployed primarily for lifesaving response missions.

**Public Affairs** need sufficient number of PA personnel to staff 24-hour operations; lengthy travel in linear operations stretched PA personnel unacceptably thin; PAOs needed to provide each unit with individual guidance and assistance in command information, community relations and media affairs; forward deployed PA personnel must become driver qualified for all small tactical vehicles such as hummers.

**Utilization of Planning Cell** - used to separate planning and current operations duties for deployed units. This cell should concentrate on duties 12 to 24 hours out for emergency operations. Rotating units in a long term emergency kept them fresh and helped alleviate other problems such as employer/family problems.

**Keeping Overhead Low** - soldiers should be dedicated to emergency missions and duties so command and control, and administrative/logistic support cells can be kept to a minimum. Use of local vendors helps keep over head low. Encourage innovative methods to streamline operations i.e. mass sandbagging operations.

## Lessons Learned and Recommendations

**National Guard and Civilian Government** - there will always be a problem because individuals change positions and responsibilities. However it is extremely important to identify the local official in charge of an emergency operation. This gives the Guard both a point of contact in the community and a focus on what their mission

will be in the community. Local civilian emergency operations should be continually educated about what the Guard's capabilities are and under what circumstances Guard support can be provided. Likewise Guard leaders must be familiar with both civilian authority and scope of the Guard's mission in a community.

**Organization** - Because of the nature of emergency duty, units will have varying missions but each unit must keep their Task Force headquarters and the State EOC informed on their mission.

**Specific Missions** - Each mission must be as specific as possible, so the commander can focus on providing the support requested. Civilian authorities will try to change the mission and/or give additional missions to the Commander who may or may not have the correct equipment or personnel to provide support. Lifesaving measures are always accepted.

**Administrative and Logistic Problems** - The Missouri National Guard should develop a new Emergency Response Plan to replace their current State of Emergency Duty - Standard Operating Procedures.



**MG Ray Pendergrass and Congressman Ike Skelton at a Press Briefing during the flooding**

# State Emergency Management Agency (SEMA)

## The Response

State Emergency Management Agency (SEMA) is an emergency coordinating agency during disasters. Local emergency managers are encouraged to use all local means at their disposal during a disaster. SEMA maintains close and constant contact with local emergency managers to assess the local situation and be able to brief the Governor's Office. Once a local government's emergency response has been overwhelmed, the local government can turn to SEMA for assistance. During an emergency, SEMA works within the Adjutant General's Office, but normally reports directly to the Governor's Office and can task State agencies to assist in an emergency response.

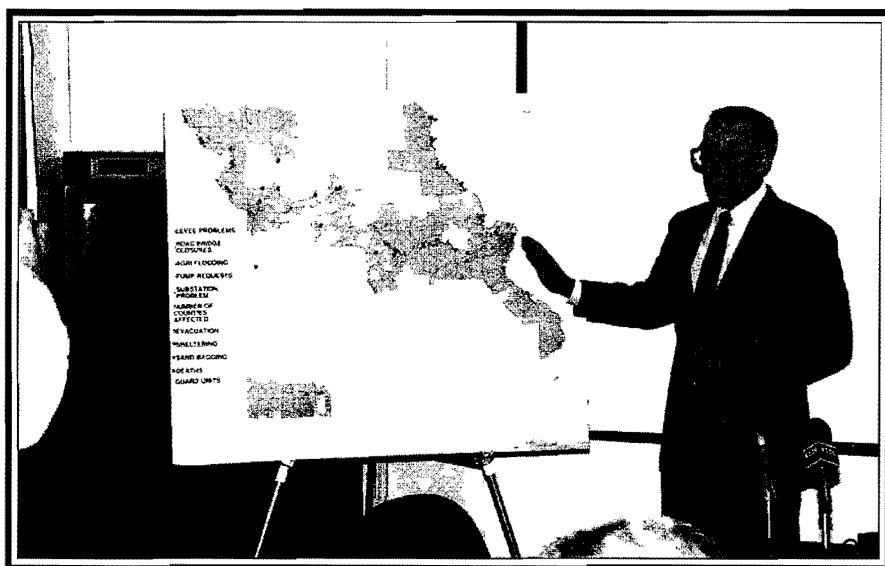
In the floods of 1993-94, SEMA operated the State Emergency Operations Center (SEOC) on a 24-hour basis during each flooding disaster. Prior to a state of emergency declaration, SEMA and local emergency management directors conduct Preliminary Damage Assessments (PDA) for briefing both the Governor's Office and other state agencies. Once a Presidential Disaster has been declared, SEMA staff members are sent into the field to staff not only the Disaster Field Office (DFO) but also Disaster Application Centers (DACs) with FEMA. In addition to maintaining an activity log of the disaster, SEMA gives daily briefings to both the Governor's Office and the press.

During the Great Summer Flood, SEMA was staffing the SEOC in Jefferson City, the DFO in Earth City, Central Processing Office for the Individual and Family Grant (IFG) and Public Assistance (PA) in Kansas City. Because of the magnitude of the damage to public facilities, Missouri was divided in half. Deputy Director Paul Schleer with his FEMA counter-

part covered damage assessments and public information briefings in the Western half of Missouri while Branch Chiefs David Williams and John Tandy covered the Eastern half of Missouri. Many SEMA staff were deployed into the field in early July, and did not return to the SEOC until late October. The SEOC maintained constant communications with the DFO in Earth City on all decisions regarding DACs, PA, IFG and disaster assistance.

remains were recovered. However because 448 remained unidentified, the National Disaster Medical Services Unit was brought to the temporary morgue site at the Ray County Fairgrounds to help identify the remains. Ceremonies to rebury the remains at a new cemetery site were conducted close to Thanksgiving, 1993.

## The Recovery



**SEMA Director Jerry Uhlmann shows the hardest hit flood-affected counties during a daily press briefing where updated statistics were distributed state-wide**

The SEMA Mobile Communications Center went into the field, mostly in Northeast Missouri, to provide support to local communities.

SEMA's Bob Rogers with Ray County Coroner Dean Snow worked the Hardin Cemetery Disaster in Ray County where the Missouri River washed out 769 vaults/caskets from the cemetery. Casket recovery operations involved the Missouri Funeral Home Directors Assn., the Ray and Carroll Counties Sheriff Departments, Missouri National Guard, Water Patrol, Conservation Department, volunteers and SEMA. Five hundred-seventy

**Individual and Family Grants Program (IFG)** - SEMA administers the IFG program. In the flooding disasters, more than 35,000 Missourians went to a DAC for assistance. They were interviewed by DAC staff for various assistance programs. The victims also were interviewed by the Small Business Administration to see if the applicant might qualify for a low interest loan. If the victim is turned down for a loan by the SBA, the applicant is automatically referred to the Individual and Family Grant Program. The applicant may obtain grants for minimal household repairs or personal property replacement,

transportation replacement, disaster-related funerals, dental work or medical treatment of prescriptions. If applicants receive a household repairs or personal property replacement grant, the applicants must purchase floodplain insurance. The money for the first year's insurance premium also is given to the applicant. The applicant must show proof of insurance purchase to the IFG program or forfeit the grant. The IFG program processed 17,236 applications for grants and awarded more than \$25.7 million in assistance. It is estimated that more than \$300,000 in IFG grants were either duplication of benefits, failure to purchase NFIP insurance, errors by either SEMA or FEMA in processing the application or fraud. The IFG program is currently working to recoup this money. As of October 31, 1994, more than \$60,000 in IFG funds has been reclaimed.

**Public Assistance** - SEMA administers the Public Assistance Program. In the Great Summer Flood, 88 counties and three cities were eligible to receive Public Assistance. SEMA received 901 applications for assistance as follows: 424 from local governments, 16 from State agencies, 350 from special districts and 111 from private non-profit organizations. As of October 10, 1994, SEMA has processed payments of over \$114 million with a projected total amount of \$132 million. In the November flooding, 14 counties were eligible to receive Public Assistance. SEMA received 38 applications for assistance as follows: 31 local governments, 3 from State agencies, 1 special district and 3 private non-profit organizations. As of October 10, 1994, SEMA has processed payments of over \$2.9 million with a projected payout of \$3 million. The Public Assistance funds are also being used for the demolition of structures purchased through the buyout/relocation effort. Total funds for demolition are estimated at \$18 million.

**Missouri Community Buyout and Relocation Program (Hazard Mitigation)** - One of the most effective

ways to stop repeated residential flooding in the flood plain is to purchase the property from a willing seller thus moving the homeowner out of the flood plain. Basically, that is the concept behind the Missouri Community Buyout and Relocation Program. FEMA earmarked \$30 million for hazard mitigation for this program. The State needed to come up with a 25% match to the Hazard Mitigation (Sec. 404) federal funds. However, Governor Carnahan felt so strongly about moving willing sellers out of the flood plain he decided Missouri would use matching Community Development Block Grant (CDBG) funds in a 50-50 match. Additionally, Federal Demolition Funds (Sec. 406) could be used in this program giving Missouri the biggest bag for each buck. A total of \$60 million has been earmarked for 42 local community buyout programs. This program should purchase approximately 2427 individual primary residences, 1178 mobile home pads, 385 vacant lots and four apartment buildings. This program is administered by SEMA. The Department of Economic Development will administer 8 community buyout projects using only CDBG funds.

The 42 buyout communities are: Alexandria, Arnold, Bellefontaine-Neighbors, Boone County, Buchanan County, Canton, Charrette Apartments in Marthasville, Clark County, Crystal City, Edgerton, Excelsior Springs, Fenton, Festus, Franklin County, Hannibal, Hartsburg, Hermann, Howard County, Jefferson City, Jefferson County, LaGrange, Levasy, Lincoln County, Marion County, Maryville, Neosho, Pattonsburg, Perry County, Phelps County, Rhineland, St. Charles City, St. Charles County, St. Clair, St. Louis County, St. Mary, Ste. Genevieve, Tracy, Wakenda, Warren County, Washington, Waynesville and Winfield.

Two buyout communities that were funded with funds from the November flooding and matching CDBG funds were: Fredricktown and Waynesville.

These two communities will purchase 20 primary residences, one vacant lot, 10 mobile home pads and 12 rental (public housing) units.

**Hazard Mitigation under Public Works** - Funds became available from the November flooding for hazard mitigation. These projects could range from installing culverts to reroute storm water to raising public property above the floodplain, i.e., a road or critical structure.

**Advisory Functions** - The SEMA director chaired the Governor's Task Force on Flood Plain Management which made seven recommendations to the Governor. The SEMA deputy director was a member of the Governor's Flood Recovery Partnership. The recommendation from this committee that most affects SEMA is establishing a statewide Voluntary Agency Disaster Coordinator similar to the FEMA counterpart. This position was created by Executive Order 94-25 and is awaiting funding by the legislature.

## Problem Areas

-- Preparedness: Although the great majority of SEMA employees felt comfortable and competent in their particular area of expertise, the intensity and duration of the disaster required many SEMA employees to operate out of their primary specialty. Many felt very uncomfortable doing so, especially since they were often assigned to a new specialty with no briefing as to responsibilities, and no written guidance.

-- Many employees felt they needed greater familiarity with Damage Assessment procedures, EOC procedures to include written description of what positions in the EOC are responsible for, DAC operations, and DFO operations in particular. Almost every SEMA employee felt he or she needed greater knowledge of IA and PA procedures.

-- FEMA-SEMA needs to develop

standard operating procedures on establishment, usage and payment of telephone communications at DACs. In many instances, only one telephone was available at the DAC for all agencies and the citizens to utilize. FEMA expects the local jurisdiction to bear the cost on installing telephones and paying the toll charges.

-- Copy machines and fax machines are needed at DACs, but were not available during the great flood of '93.

-- SEMA had considerable problems with FEMA Public Information Officers personnel at the Earth City DFO. At various times, FEMA PIOs developed and issued news releases without coordination or approval of their SEMA counterparts, even though they were using the SEMA logo on their news release stationery. A FEMA/SEMA SOP for joint PIO operations is needed.

-- More coordination between the State Coordinating Officer and State agencies is needed at the DFO. There were times that FEMA officials worked directly with various State agencies located in the DFO response cell without coordination with the SCO.

-- More equipment is needed for SEMA personnel working in the DFO; i.e. computers, word processing software, briefing boards, dedicated fax machines etc.

-- Much closer coordination on a constant basis is needed between the State EOC in Jefferson City and the DFO located elsewhere.

-- Trained State damage assessment personnel need to be ready to be sent to the field at all times.

## Areas of Excellence

- SEMA employees, like other State employees, gave 110% to the flood response and recovery efforts. SEMA employees worked 10,042 hours of overtime. SEMA has 53 full time

employees. Between September 1993 and December 1994, SEMA hired 25 temporary employees to work Public Assistance and hired 39 temporary employees to work IFG program. The peak number of temporary employees was January 1994.

- Emergency management training for local emergency managers became a first line of defense in a disaster response.



- Coordination between local, State and federal agencies was good during the emergency response and recovery efforts.

- Preparedness - because a flood is a "slow" event as compared to an earthquake, local, State and federal agencies had time to prepare as up-river flooding flowed the Missouri and Mississippi Rivers as opposed to a catastrophic disaster without warning.

## Recommendations

- SEMA employees need to be cross trained in disaster response specialties.

- SEMA needs to expand the resource database to better determine what is in the state inventory for use during a disaster.

- SEMA needs a Corps of Engineers representative in the EOC during flood fight operations.

- SEMA needs someone to coordinate donations.

- SEMA needs to give more periodic briefings in the EOC to keep own people informed as well as those from other State agencies.

- SEMA needs a State Recovery Information Packet available for Communities.

- SEMA needs written EOC procedures that explain the how State agency representatives will operate in the EOC.

- SEMA needs written Disaster Application Center procedures.

- SEMA needs written Disaster Field Office procedures.

- SEMA should develop a guidebook for local officials, outlining preliminary damage assessment for Public Assistance and Individual Assistance.

- Develop a list of who (what communities, etc.) can potentially apply for Public Assistance.

- Include lessons learned from this flood, in terms of Public Assistance into curriculum.

- Develop an ongoing brief for local officials on various disaster assistance programs and how they fit together.

- Too much duplication of effort - many State agencies gathering the same information, poor coordination between State agencies, lack of resource identification, need resources identified in advance, no State recovery information packet.

- SEMA needs to identify and train reserve personnel to supplement staff during a disaster. Approximately 100 persons were temporarily hired to assist in the response and recovery operations.

- STATE AGENCIES must have a presence in both the SEOC and the DFO during future disasters.

## GLOSSARY OF TERMS AND ACRONYMS

**ARC** - American Red Cross

**CAP** - Civil Air Patrol is a volunteer civilian Air Force group responsible for search and rescue, aerial radiological monitoring, and other activities as requested by the State.

**COE** - United States Army Corps of Engineers

**DAC** - Disaster Application Center is designed as a one-stop center for disaster victims to apply for assistance from various State, Federal, and private agencies and groups.

**DFO** - Disaster Field Office is the administrative office established at the scene of a presidential declared disaster.

**Disaster** - A dangerous event that causes significant human and economic loss and demands a crisis response beyond the scope of any single agency or service, such as fire department or police. In legal terms, a disaster requires resources beyond those available locally.

**DSC** - Disaster Service Center is a facility in which disaster victims can obtain further assistance with their application preparation by meeting with a representative from the Individual Family Grant program.

**EBS** - Emergency Broadcast System is a communication and warning system set up by the Federal government in order for emergency messages to be broadcast via radio and TV stations.

**Emergency** - A dangerous event similar to a disaster, but which can be controlled within the scope of local resources.

**EOC** - Emergency Operation Center is a centralized location where direction and control information collection is evaluated and displayed, where coordination among response agencies takes place, and resources are managed.

**EOP** - Emergency Operation Plan

**Emergency Support Services** The departments of local government that have the capability to respond to emergencies twenty-four hours a day.

**FCO** - Federal Coordinating Officer is the individual in charge of coordinating all Federal agencies and their programs at the DFO. It is usually someone appointed by the President in the affected region.

**FEMA** - Federal Emergency Management Agency

**FIA** - Federal Insurance Administration, the component of FEMA that administers the National Flood Insurance Program.

**Hazard** - A dangerous event or circumstance that may or may not lead to an emergency or disaster.

**HAZMAT** - Hazardous Material

**IA** - Individual Assistance

**IFG** - Individual Family Grant program is administered by SEMA to provide relief assistance to disaster victims following a presidential declared disaster.

**JPIC** - Joint Public Information Center is a centralized facility to coordinate briefings to the news media by representatives of key response organizations in a disaster or emergency.

**LEOP** - Local Emergency Operation Plan

**NAWAS** - National Warning System is a landline network for transmitting and receiving emergency information to and from Federal, State, and local agencies who have NAWAS phones. It was specifically designed for warning in the event of national emergency. It is also now used in transmitting and receiving other emergency information such as severe weather.

**NFIP** - National Flood Insurance Program includes flood insurance and floodplain management programs administered by FEMA.

**NOAA** - National Oceanic and Atmospheric Administration administers scientific and research programs related to oceans and atmospheric conditions, specifically related to climatology and weather phenomena.

**NRT** - National Response Team

**NWS** - National Weather Service is an agency that provides population information regarding weather phenomena, especially in the area of forecasting.

**PA** - Public Assistance is a program administered by SEMA to provide partial funding for damaged publicly owned facilities during a presidential declared disaster.

**PAO** - Public Assistance Officer is a SEMA staff member responsible for administration of the Public Assistance Program.

**RCO** - Regional Coordinating Officer is a liaison between States and the Federal Government. Missouri, Kansas, Iowa, and Nebraska are in FEMA Region VII.

**RD** - Regional Director (FEMA)

**RISK** - The estimated probability that damage will occur to life, property, or the environment if a specified dangerous event occurs.

**SA** - Salvation Army

**SBA** - Small Business Administration

**SC** - Service Center is a facility in which disaster victims can obtain further assistance with their application preparation by meeting with a representative from IFG.

**SCO** - State Coordinating Officer is a person appointed by the Governor, usually the Director of SEMA, to act as coordinator for State agencies in disaster relief operations.

**SEMA** - State Emergency Management Agency

**SEOP** - State Emergency Operation Plan

**SOP** - Standard Operating Procedures

**STATE OF EMERGENCY** - When local jurisdictions have depleted their resources, the Governor may call a State of Emergency thus tasking state agencies to come to the assistance of local jurisdictions.

**VOAD** - Volunteer Organizations Active in Disaster fosters more effective service through mitigation and response, for the benefit of people affected (imperiled or impacted) by a disaster.